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ABSTRACT

This monograph offers practical suggestions for interacting with gifted children at home. Section 1, "Parenting Styles Make a Difference," discusses a study on the differences in parenting styles of parents of gifted and nongifted students, describes four parental personality types that can cause or exacerbate problems in gifted children, and recommends strategies for disciplining the gifted child. Section 2, "The Enriched Environment," describes how parents can create surroundings that stimulate their gifted child. Topics discussed include how to give appropriate praise and how to recognize and help manage the stress of a gifted child. Section 3, "Nurturing Your Child's Creativity," includes strategies on how to apply creativity to family conflicts, how to foster inventing, and how to make books or booklets at home to encourage creativity. Section 4, "Critical Thinking, Research, and Study Skills," describes how parents can help enhance their children's critical thinking skills, provides homework hints, and offers recommendations for teaching note taking. Section 5, "Academics at Home: The Core Subjects," presents information on teaching writing, math, science, and social studies. Section 6, "The Value of Play," highlights the importance of encouraging symbolic play and describes different types of games. A summary of key parenting tips is provided. (Contains 26 references.) (CR)

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Considerations and Strategies for Parenting the Gifted Child

James Alvino, Ph.D.
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Ann Arbor, Michigan

September 1995
Number RM95218

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Dr. James Alvino is President of James Alvino Associates—a management consulting firm specializing in gifted education, educational publishing, strategic planning, team building, and creative problem solving. Since entering the gifted field in 1976, Dr. Alvino has specialized in issues related to parenting gifted children. He was publisher and editor-in-chief of the multi-award-winning *Gifted Children Monthly* from 1981-89. From 1991-93 he directed the Future Problem Solving Program and, with Paul Torrance, developed an adaptation of the FPS process for use in the corporate world. Recently James Alvino Associates and Creative Learning Press were awarded a contract to launch a parent magazine for the National Association for Gifted Children.

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ABSTRACT

Parents of gifted children are typically the single most important influence in their child's development, outlook, and fulfillment of talent. In addition to being their child's primary caregivers, parents of gifted children alternately function as "mentor," "praiser," "disciplinarian," "playmate," "teacher," and sometimes "best friend"—to name just a few. Parents are truly the guardians and nurturers of their children's talents.

The home environment is critical in nurturing giftedness and instilling the values conducive to its full blossoming. This monograph, selected from the research and work of many experts in the fields of child development and gifted education, focuses on a number of key environmental, academic, and affective variables.

The monograph offers practical suggestions for interacting with gifted children at home, for building the kind of foundation to support the edifice of talent, productivity, and self-actualization characterizing gifted adults. It is not intended to deal with all the concerns that parents of gifted children have in raising their youngsters. The specific issues addressed are some of the critical ones that the author has discussed with parents during his 20 years in the field of gifted education. The primary age range of children addressed in the monograph is toddler through elementary school. Specific reference to age is made as needed or appropriate. Parents may use their discretion in applying the activities to children of different ages.

For the purposes of this monograph, "gifted" may be considered primarily as the combination of three characteristics—above average ability, creativity, and task commitment—coming together in an area of the child's interest (Renzulli, 1977). Children may not display these "gifted traits" all the time, nor are they necessarily gifted in all areas. In fact, most children are not.

The home environment is critical in nurturing giftedness and instilling the values conducive to its full blossoming.

The activities and suggestions are designed to nurture talent development, whether academic or creative. They are not formally "differentiated" as one might expect school activities for gifted children. While all children might benefit from many of these activities, gifted children will tend to excel in their responses (e.g., quantity or quality of ideas, interest, excitement), or become interested in them at an earlier age than other children. This will vary on an individual basis.

Much of the material from this report was taken from *Parents' Guide to Raising a Gifted Child* (1985) and *Parents' Guide to Raising a Gifted Toddler* (1989) by James Alvino and the editors of *Gifted Children Monthly*. It is edited and reprinted here by permission.

A special thank you goes to Sandy Berger at the Council for Exceptional Children (CEC) for her assistance in searching the literature on the main topics covered in this monograph. Special thank-yous also go to those who reviewed the manuscript for their insightful and helpful comments: Donna Rae Clasen, E. Jean Gubbins, Mary Rizza, Nancy Robinson, Carol Takacs, Shirley Weddel, and Bonnie Arnold Wenngren.

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Parenting Styles Make a Difference

Researchers at the University of Illinois Institute for Child Behavior and Development found many more commonalities than differences between parents of gifted children and parents of children with average or above-average intelligence. However, there were some significant differences in their styles of parenting. Karnes, Shwedel, and Steinberg (1984) compared two groups of middle- to upper-middle-class parents: parents of ten gifted preschoolers and those of ten average or above-average preschoolers, as measured by IQ.

Both groups of parents had similar incomes and a similar distribution of occupations among the fathers. Five of the mothers of the gifted children worked full-time, compared to only one of the other mothers. Each parent was interviewed individually. The study sought to determine whether there were meaningful differences in "attitudes, values, and behaviors" between the two groups of parents vis-a-vis their parenting styles.

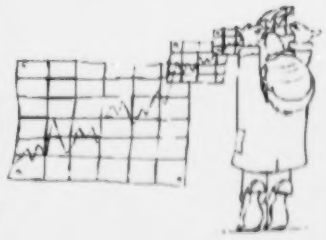
Results of the Study

- As to school-related activities, the parents of the gifted tended to spend more time reading to their children than parents of the nongifted, and mothers of the gifted were more likely to encourage language development (through rhymes, nonsense songs, and other "creative verbal activity"), love, and freedom in their child. Only fathers of the nongifted children indicated that they had little influence on their child's learning, interests, and development.

- All the parents reported that they took their child to child-oriented activities; parents of the gifted, however, were much more likely to use resources not designed for a specific age group—such as art museums, nature walks, and natural-history

Check Your Parenting Style

The Research Says...



Check Your Parenting Style

museums. All parents reported only light TV viewing at home (the median was 1.5 hours a day). However, parents of the gifted were more likely to prohibit watching violent programs; parents of the nongifted were more likely to turn off sex-oriented programs.

- In the affective areas, mothers in both groups tended to talk to their children about feelings and emotions. Both parents of the gifted additionally used praise and "doing something special" for the child as a way of enhancing the child's self-concept.

- Parents had high aspirations for their children, with those of the gifted leaning toward professional or scientific careers and those of the nongifted more likely to cite altruistic or creative careers.

- Parents of the gifted were much more interested in being involved in their child's schooling. For example, 90 percent of the mothers of the gifted wanted to be involved in teacher selection, compared to only 40 percent of the mothers of the nongifted.

- Intellectual capabilities were viewed as an area of strength by all of the parents of the gifted, but by only 35 percent of those of the nongifted; parents of the nongifted were more pleased with social abilities and psychomotor abilities of their children than were the parents of the gifted.

- Nearly half of the parents of the gifted wished their children were more independent of them. Few parents cited discipline as a worrisome problem; however, a significantly larger percentage of the parents of nongifted children said they spanked their children as a disciplinary technique compared to parents of the gifted.

Temper Overbearing Personality Traits

Writing in an issue of *Pediatric Annals*, McGuffog (1985) describes four parental personality types—parenting styles, really—that can cause or exacerbate problems in gifted youngsters. You may wish to examine your own parenting style and strive to make adjustments as necessary.

The Overly Critical Parent: Such a parent imposes highly unrealistic expectations on the gifted child, and consequently, the child may feel he or she can never live up to those expectations. Such parents must learn to focus on the many positive aspects of their child's behavior.

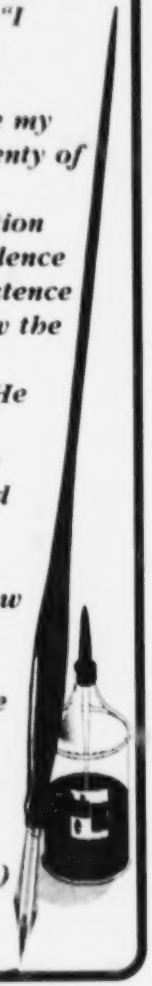
The Overly Dominating Parent: Some gifted children come to feel the "they do not own their own giftedness." Through assertiveness or manipulation, these parents dominate the child, and the child's decisions are based on the parents' needs and desires. Such parents must become aware of the unfair burdens they are placing on their gifted child

The Overly Conscientious Parent: An overly driven parent "very often fills every minute of the child's day with structured learning activities," thus denying the child "healthy, age-appropriate opportunities." Parents need to see the value of unstructured time and self-initiated play with peers.

The Overly Directive/Permissive Parent: Although overly directive in play and verbal interactions, these parents are extremely lax, even uncomfortable, about setting limits and imposing discipline, usually with the excuse that they don't want to inhibit creativity. However, research has shown that authoritative parenting can lead to better school performance and better concentration on studies than other parenting styles (Steinberg, 1992). Parents must learn that a balance is best for the child, with

A parent of a gifted child wrote: ***"I have trouble balancing my desire to give my gifted son plenty of room for experimentation and independence with my insistence that he follow the rules of the household. He constantly questions my decisions and tries to negotiate changes. How can parents nurture independence and impose discipline at the same time?"***

(Alvino, 1985)



Check Your Parenting Style

the child leading in play, for example, and the parent pointing the way on what is acceptable and unacceptable behavior.

Discipline: Backdrop for Emergence of Creative Talent

Discipline, as Hollingsworth (cited in Alvino, 1985) points out, is an emotionally loaded word which is often associated with authoritarianism, coercion, and punishment. Those who consider themselves to be enlightened and fair-minded may well react negatively to the notion of imposing discipline on a child. It may be argued that the more important considerations when raising a gifted child include fostering divergent thinking, inquisitiveness, a need-to-know, and an independence of spirit.

Love Is Essential

The primary factors in raising an emotionally healthy child are quite basic: the child must know that he or she is loved, and the child must know the "rules of the game." Discipline plays an important role in both of these areas.

Love is something too often taken for granted. A parent might say, "Of course I love my child," and expect that attitude to be communicated to the child in some way, or expect that the child "just knows" he or she is loved. This is not enough. Children must have parental love demonstrated—the more the better. Just as important, the demonstration must be appropriate to the child's developmental age.

Spending time with the child is a very important factor. Parents of infants should spend time holding, rocking, and talking to their children. As the child becomes a toddler, encouragement and descriptive praise gain importance.

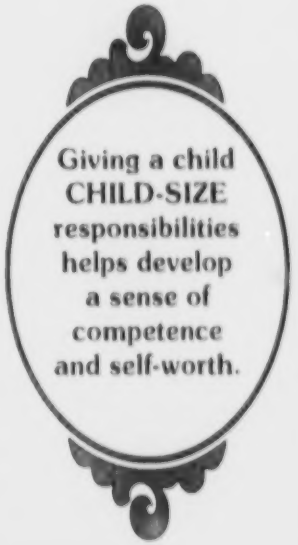
As the child grows older, other demonstrations of parental love should be added. For example, giving children responsibility shows them that they are competent in their parents' eyes. It is important that the responsibility be age-appropriate. A five-year-old is perfectly capable of setting the table or deciding whether to wear his or her red shirt or blue shirt to school. That same child is not capable of deciding what constitutes a balanced diet or whether the family should visit Aunt Mildred on Saturday.

Giving a child child-size responsibilities helps develop a sense of competence and self-worth. Giving a child adult-size responsibilities leads to insecurity and inappropriate behavior. Children need to know that the world is an orderly place with a degree of predictability to it. They depend upon their parents for that orderliness. When parents do not fulfill their parental roles, the child's world-view becomes chaotic and the child can become maladjusted.

Demonstrating respect for your child's ideas is another way of showing love. There should be times for family conversation, when the children may express their thoughts, feelings, and opinions. The dinner table was the traditional setting for such conversations, and where circumstances permit, this is a tradition well worth preserving. An open forum or brainstorming atmosphere should prevail, and gifted children should feel free to express their own ideas on politics, religion, sex, or the ice cream flavor of the month without fear of ridicule or censure. Equally important, the child should be taught that most conversations that take place away from the dinner table are not open forums and that it is a matter of courtesy not to intrude on others' conversations (not even one's parents).

Perhaps the most common discipline problems with gifted children are related to their reasoning skills and verbal facility. It is not uncommon to see many four- and five-year-olds lead their parents into lengthy debates over matters that were quite properly within the parents' sole province. Gifted children learn quickly that their parents are loathe to use the intellectually stifling "because I said so," and therefore almost

Check Your Parenting Style



Check Your Parenting Style

The best way to enforce a rule is through its consequences.

any edict can be questioned, argued, and debated, with the resulting reinforcement of parental attention. However, limits are reassuring to children, especially young children who may panic should they argue for and win the degree of power and autonomy.

An important parenting skill involves learning to limit and structure a child's choices. In the previous example of red shirt versus blue shirt, the parent should define the range of choices: the child may choose among styles, colors and patterns, but the parent has already selected a group of shirts appropriate to the season and occasion. Similarly with bedtime: the child may be given the choice of bathing before or after a favorite program, what bedtime story is to be read, what kind of snack (within limits set by the parent), and so on. The child may even decide whether to sleep or stay awake. But no matter what, it's "in bed and lights out" at a specific time.

Sure, children will test the limits. They will complain. They will try your patience. That is their nature. But despite their protests, children are more comfortable, and therefore happier, when their parents are the final authority. It is also a lot easier to resist peer pressure when one can "blame" one's parents for not allowing something.

Enforcing Rules

Enforcing rules is what we usually mean when we talk about discipline. The best way to enforce a rule is through its consequences. This simple principle has gained a lot of fancy terminology. There are books about behavior modification, contingency contracting, and positive reinforcement, but much of it is plain old common sense. Remember Grandma's Rule? "You do what I want you to do before you get to do what you want to do." There are some other common-sense principles worth following:

A rule is a rule. Just ask any four-year-old whether it is OK to change the rules of a game. He/she will tell you—absolutely not. Therefore, it is best to be consistent. If you give in to your child's challenge, you have taught him or her several things: Rules can be broken. If you push long and hard enough you will get your way. Parents are not really in charge. Make the rules as few as possible and stick to them.

Choose your battles. When you decide to draw the line, be sure it is fair and appropriate. It is appropriate to demand that a four-year-old stay out of the street, or that a thirteen-year-old be home at a reasonable hour. On the other hand, it is not appropriate to demand that a four-year-old stay out of puddles, or that a thirteen-year-old conform to your tastes in clothes or hair style.

There is a time and place for discussion. Children should have some say where rules are concerned, and often they are tougher on themselves than their parents. But negotiations and discussions should take place at a time when calm and reason can prevail. This means you do not renegotiate a curfew while your child is walking out the door.

Let them act their age. Gifted children with adult vocabularies are still just kids. Do not push them to be miniature adults. Respect the children's developmental level.

Check Your Parenting Style

Just as we can exercise our bodies to make them more physically fit, so can we exercise our brains.

THE ENRICHED ENVIRONMENT

The kinds of activities suggested here will help enrich the home environment, optimize learning, and balance intellectual growth with emotional growth.

The Enriched Environment

The Enriched Environment—"Inside" and "Outside"

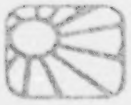
Elkind (1981, 1987) has stated that the major "advantage" any parent can give a child—right from birth—is an enriched environment. This does not mean flash cards or reading instruction at age two, but rather surroundings that resemble an "intellectual broth," a dynamic mixture of stimulating ingredients full of aromas and flavors that pique the senses.

From an environmental point of view (since we cannot do anything about our genes), giftedness is "born," encouraged, and allowed to develop through a process that structures a child's cognition as well as social and emotional growth. Indeed, the structures of the development themselves emerge from and are nourished by the interaction of home, family, and environment.

Just as we can exercise our bodies to make them more physically fit, so can we exercise our brains.

While each of us has a unique, highly complex genetic program built into our cells at our very beginning, a person will not become highly intelligent unless he or she is given opportunities to use and develop these inherited programs. Intelligence does not grow in a vacuum. At the same time, parenting is an interactive, two-way street. Children of different temperaments and abilities seem to draw out different experiences from their parents, which reinforces their children's development. From conception, parenting is the most important factor in developing giftedness.

Help Children Integrate Their Brain Power



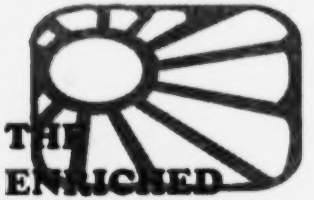
Provide complex and challenging experiences for your child in a responsive environment. In the process of developing intelligence, children have a great need for a responsive environment. People and objects in the environment can promote growth if they are meaningful or useful to the child.

Gifted children often complain that they are never really challenged or stretched mentally. Brainteasers, puzzles, open-ended questions, and events can be fun to play around with for both you and your child, and they can provide interest and challenge. Inventing new games or new ways to play old ones and discovering real and workable solutions for family or neighborhood problems give a child a sense of worth and participation.

All learning requires a period of time for the learner simply to encounter materials within the environment. Arrange a space in the playroom, your child's bedroom, or in the backyard, where a large quantity of materials—organized by type or function—are always accessible. This will make true inquiry possible.

Children up to the age of three may need guidance and assistance with materials. With four- and five-year-olds, allow large blocks of uninterrupted time, as these children developmentally are at the stage of exploring on their own.

In addition to the books, art supplies, writing material, and play material in the child's room, consider setting up a theme each week or so. For example, you might focus on magnetism one week, making available appropriate materials—magnets, paper clips, and other materials to illustrate what a magnet will and will not pick up, a compass, and so on. Your child may wish to explore nature. Help your child pick themes he or she is interested in.



THE ENRICHED ENVIRONMENT

THE ENRICHED ENVIRONMENT

Remember that each child's brain—like each snowflake—is unique.

Act as a provider, resource person, and facilitator. After setting up guidelines for movement, care, and use of materials, let the child explore freely. Remember to take time to discuss outcomes and what the child discovered, to admire what he or she has produced, and to question and extend the learning.

Teach your child ways to relax in order to reduce tension. Relaxation is an essential first step in optimizing learning. The human brain literally shuts down as anxiety, tension, or fear increase. As it moves toward relaxed awareness, it processes information faster and remembers it longer. Relaxation allows the limbic area of the brain to function more effectively and enhances the interaction between the right and left hemispheres throughout the corpus callosum. Through the continued use of relaxation, an individual can create a more balanced and coherent use of brain energy. (And remember to take time to relax each day yourself!)

Help your child learn physical focusing or centering. Centering, as effective for intellectual and emotional balance as for physical endeavors, is the ability to relax, focus energy, and move with your own natural rhythm. This approach allows the brain to operate in a more balanced and integrated way. It has the same biological advantages as relaxation does for balance and coherence within the brain. Children as young as four can manage this exercise.

It will take five to ten minutes and can be done as needed. There are no materials required and parents function as a guide. Have your child stand comfortably balanced on both feet, and give the following instructions in your own words, as you might do for encouraging relaxation:

> ***Imagine being filled halfway up inside with pure white sand . . . with any movement the sand will shift . . . now lean forward with your full weight on your toes, letting the sand shift just a little . . . lean backward with all the weight on your heels and let the sand shift again . . . lean forward again and notice the sand***

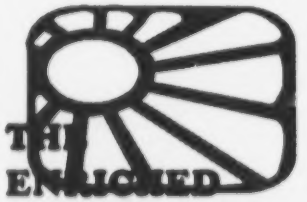
shifting . . . now back again . . . now lean forward again and stop when the sand is exactly even, neither forward nor back . . . the weight is exactly balanced . . . shift your weight to the right foot . . . feel the sand shift to one side . . . now shift to the left foot and imagine the sand shifting again . . . now right . . . now left . . . stop when the weight is neither right nor left, but exactly balanced between front and back, right and left . . . if you are now standing with your weight exactly balanced between front and back, right and left, you are centered . . . allow your knees to unlock and bend slightly . . . notice the feeling of being balanced and centered . . . notice how positive and relaxed you feel.

Encourage a discussion of how this exercise feels, and when it might be useful—for example, just before a test or other stressful situation.

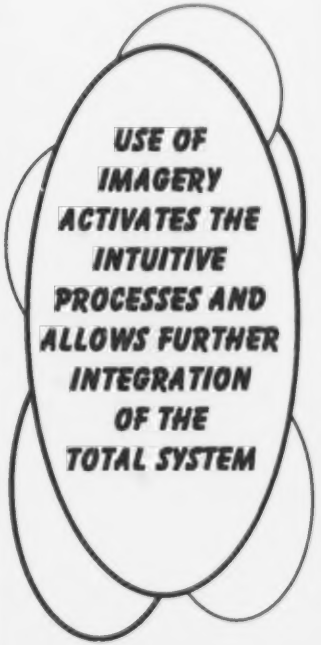
Use imagery when playing or working with your child. Encourage your child to develop imagery as a tool for improving thinking and problem solving. Not only is imaging one of the highest intellectual processes unique to humans, it enriches the play of the child and is marvelous fun. Use of imagery activates the intuitive processes and allows further integration of the total system.

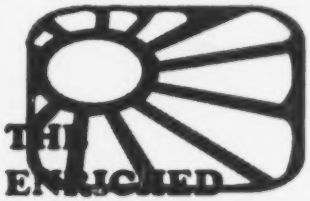
Variable amounts of time are involved each day. Books, puppets, drawing, and writing materials are all that are needed. Once again, parents function as guides.

Read to your child, tell stories, and allow your child to finish the stories you start. Using puppets (paper bag or finger puppets are easy), make up plays or retell stories. Using costumes, sound effects, and voice changes, "pretend" a story. Read poetry aloud and encourage your child to write a poem. Take fantasy journeys to places real (perhaps to the doctor's office to prepare



THE ENRICHED ENVIRONMENT





THE ENRICHED ENVIRONMENT

Praising your child appropriately means offering the right kind of positive reinforcement, the kind that encourages growth, exploration, and discovery in your youngster and joy in the process.

(Jordan, 1989)

the child for a coming visit) or imaginary. Discuss dreams and encourage your child to illustrate a remembered dream. There is no need to interpret the dream.
Just share the sights, the colors, and the feelings experienced during your activities. Stretching the imagination is easy and can provide a lot of enjoyment as your child builds skills that will be important in future planning and in creative pursuits.

Remember that each child's brain—like each snowflake—is unique. What stimulates and nurtures one child may not work for another, even in the same family. It is more important that you provide a rich array of material, activities, and events to allow each of your children to become involved with what is appropriate to his or her needs and interests. The child is the best judge of what, how, and when.

Appropriate Praise: The Cornerstone of Encouragement

Adults, particularly parents and teachers, critically influence a child's artistic and creative development, as well as his or her self-concept. We do this directly by what we say about what children draw, write, or create. The kinds of comments and praise we give can make the difference between encouraging a child's creative impulses or nipping them in the bud. A seemingly innocent comment may carry hidden messages that inhibit creative development.

Whether considering a child's early artwork or any other skill, activity, or behavior, a common mistake when applying praise is an error of focus: praise the child instead of the act.

In Praise of Praise

Praising your child appropriately means offering the right kind of positive reinforcement, the

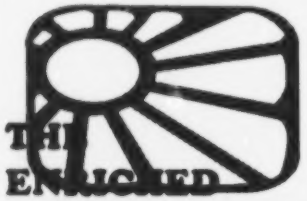
kind that encourages growth, exploration, and discovery in your youngster and joy in the process (Jordan, cited in Avino, 1989).

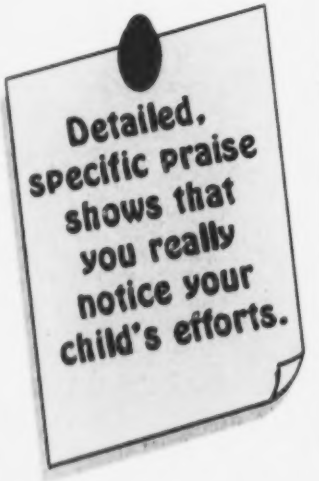
Praise the process as well as the product. A typical incident might involve a preschooler showing Mom a picture he or she has drawn. If the mother merely says how much she likes it, then hangs it up, the child's efforts, feelings, and thoughts that went into the picture are ignored. On the other hand, if you let a child know that you care about such things, he or she will glow with enthusiasm. Emphasis on how something is done can take pressure off a child who may be overly concerned about what is done.

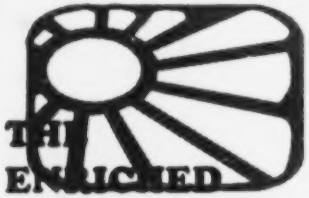
Emphasize the child's pleasure. When a child draws a picture or performs some task or skill, it can bring pleasure to both child and parents. But the child's pleasure should be primary, as it guides the child's effort and helps him or her bring the effort to completion. Don't emphasize your own pleasure; this conditions children to perform according to others' expectations. Instead, offer comments like "I can see how pleased you are," or "You must be proud of yourself." Of course, follow these comments by "I sure am proud of you, too."

Doing the job is the reward. If you've ever noticed the delight in the eyes of a child who has just learned how to ride a bike or has mastered a difficult word, you know you don't need to reward the effort with candy or money. In fact, adding something extrinsic to the achievement can serve to distract the child from enjoying the intrinsic satisfaction in mastering something. Praise can be used to help your child pause and reflect, verbalize about what went into the good performance, and reexperience the pleasure of a job well done.

Be specific when you praise. Generally thanking your child for cleaning up his or her room is more diffuse than saying thanks for picking up the pencils, the books, and the other things scattered about. Detailed, specific praise shows that you really notice your child's efforts. It makes kids feel they've earned the right to be proud. Instead of "you are such a fantastic drawer," say: "I know how much time you put into that picture and I'm not surprised those lines came out so straight."







THE ENRICHED ENVIRONMENT

You are helpful to your children's creative development when your comments focus on their needs for *attention, encouragement, self-exploration,* and *pride in their work.*

Descriptive praise is praise that goes with something in particular. "I like the way you're sitting," or "I'm happy to see you playing so nicely with your brother" are much more useful to the child than simply saying "You're a good boy today," because it tells him what he's doing that earned the praise.

Some More Do's and Don'ts

Getting back to that young artist of yours—and most preschoolers are—here are a few more suggestions to help you encourage his or her artistic and creative activity with appropriate praise. Remember, also, that these examples can be applied generally to any of your child's activities or accomplishments.

- DO make a statement that is helpful, supportive, positive, and—above all—appropriate. You are helpful to your children's creative development when your comments focus on their needs—for attention, encouragement, self-exploration, and pride in their work. You are supportive and positive when you accept the drawings as they did them and say something complimentary. You are appropriate when your comments relate to the actual work done. A feeble "That's nice" will not suffice.

- DON'T criticize the work by asking "Where's the sun?" or "Where is her other ear?" You may be told that the sun is not shining or that she only has one ear. ("What's the matter, Dad, can't you see?")

- DON'T deny the child's version of reality by saying "I never saw a red cow before," or "When did you ever see one?"

- DON'T ask what it is. They may not know.

- DON'T compare it to the work of another child, except in a non-judgmental way.

("Okay, you made red circles. Billy made blue ones. I'm glad you both used the colors you like.")

DON'T ignore the work of art, hoping the child will not notice and will go away. The child will notice and will go away devastated. (Delisle, cited in Alvino, 1989)

If titles are to be applied, let the child do it. You should support the child's perceptions and tastes as valid interpretations of reality and should encourage further creative expression.

Displaying Work

There are two things to keep in mind about displaying family artwork. First, parents should set an example by displaying some of their own handiwork—whatever the medium. If you do not, two negative messages are transmitted to your child: "I'm not proud of anything I've done" and "It's immature for adults to take pride in their work—only kids do it." Second, do not hang the child's work only on the refrigerator door. By engaging in this practice, you give your child the message that his or her work is second-rate. It goes in the kitchen. The quality work hangs on the wall of the family room or living room.

Stress: Causes and Cures in Gifted Kids (and Their Parents)

Most adults are familiar with the physical and emotional symptoms of stress: irritability, headaches, insomnia, ulcers, high blood pressure, heart disease, aggressiveness, depression, withdrawal, tension, substance abuse, rigid thinking, forgetfulness, loss of appetite, overeating, intense anxiety, and insecurity—to name some common ones.

Gifted children are particularly susceptible to stress, which if not checked may result in any number of chronic maladies or "burnout" (Fimian, 1989). This is characterized by a state of mental and physical exhaustion from prolonged, unrelieved stress that can lead to withdrawal,

Gifted children are particularly susceptible to stress, which if not checked may result in any number of chronic maladies or "burnout." (Fimian, 1989)

Stress Causes & Cures

Pressure caused by the ambitious demands of others is undoubtedly a great source of anxiety for gifted children.

hopelessness, and inactivity. Farrell (1989) reports that suicide has become the solution to an increasing number of gifted youth's inability to cope.

At High Risk for Burnout

The reasons gifted children are at high risk for stress and burnout are multifaceted, ranging from excessive environmental demands to negative self-perception habits and coping patterns to undeveloped stress management skills. Also, gifted children are often multi-talented and tend to be pulled in too many directions or into too many activities. Some developmental and behavioral factors leading to stress are listed below.

Perfectionist Tendencies

Leanings toward perfectionism may be learned, brain-based (part of an individual's psychological-neurological makeup), or both. Children who suffer from perfectionism are in a constant state of frustration because of the ever present gap between how they feel they are actually performing and their sometimes unrealistic, sometimes self-imposed achievement goals. Kaplan and Geoffroy (1993) report that self-inflicted stress can lead to burnout or underachievement. This can lead to perfectionistic "freeze-up," which is a type of internal stage fright or fear of failure associated with any new, perhaps threatening challenge.

On the other hand, perfectionism is not the same as setting high but attainable standards for oneself. In the latter case, calculated risks and challenges are accepted, accomplishments are celebrated, and mistakes or failures are seen as learning experiences.

Excessive Achievement Demands

Pressure caused by the ambitious demands of others is undoubtedly a great source of anxiety for gifted children. A general "achievement anxiety" can be generated in children by well-meaning adults who want their kids to do their best all the time. Rather than "achieving to live" a satisfying, productive life, gifted

children overburdened in this manner may learn to "live to achieve." Achievement-anxious children are often plagued by such fears and implicit questions as "Can I maintain this level of achievement?" and "Will only more be expected of me once I achieve these goals?" They sometimes camouflage themselves behind a facade of underachievement (Gleason, 1988).

Intellectual/Social Development Gap

A gifted child of four may well have the intellectual interests and abilities of an eight-year-old, but obviously will not have the physical/social development of an older child. The efforts of a bright youngster to socialize with older children will quite often be blocked by the older children's rejection of the "little kid." Thus the gifted preschooler feels "out of it" with his or her own agemates as well as with older kids who pay no attention. Social isolation can cause stress.

Heightened Sensitivity to Adult Problems

Gifted kids tend to be "info-maniacs" about what is going on in their environment, everything from family problems to global issues, and this, too can create stress. They often worry about problems that may not affect them directly (except that the worry does affect them), or over which they have no control.

How Stress Takes its Toll

An optimal level of stress energizes the system. However, almost without exception, excessive stress decreases the academic performance of children and their mastery of new skills. Too much stress at an early age can severely affect development.

But it is a child's creative thinking—an essential hallmark of giftedness—that seems to suffer most. Torrance and Goff (1990) observed that by the fourth grade it is very difficult to reverse the early harmful effects of stress and anxiety on creative thinking. Children so afflicted are

Stress Causes & Cures

An optimal level of stress energizes the system.

Stress
Causes
& Cures

unable to relax. They begin to display Type A personality characteristics: tension, extreme competitiveness, impatience, and the like. In addition to preventing a gifted child's creative juices from flowing, stress can lead to certain psychosomatic illnesses like headaches, stomachaches, and depression.

The ABCs of Stress Management

The following checklist of excessive-stress warning signs will help you determine how "stressed out" your child is. The more symptoms a child has, the more likely he or she is suffering from excessive stress. (Physical complaints should be investigated to identify or eliminate possible somatic causes.)

- A major change in attitude or temperament (irritability, lack of enthusiasm, depression, carelessness)
- Withdrawal, outbursts, or tantrums for little or no apparent reason
- Hyperactive behavior (fidgeting, nervous tics, jumping from task to task, trouble concentrating)
- Suspicious complaints of fatigue and vague illnesses—"convenient" sickness to avoid certain tasks or situations
- Insomnia or refusal to get out of bed
- Stomachaches or headaches
- An increase in allergic/asthmatic attacks
- Elimination problems

The Stress Management Triangle

Stress management can be accomplished through relaxation training that takes a "whole-child approach"—one that pays attention to attitude, behavior, and environment, as illustrated by the

accompanying diagram (Alvino, 1989).

Figure 1. Stress management triangle.

Attitude

Attitude forms one-third of the equilateral triangle and refers to that set of beliefs, values, and responses that make up a person's general outlook, composure, and comportment. Although a very young child may not be aware of such factors explicitly, you can guide him or her from negative to positive attitudes (for instance, from pessimism to optimism, from disbelief in self to belief in self), or to circumvent the negative ones altogether, by building an "internal locus of control" in your child.

Causes & Cures

Probably the most important thing to remember in a stress management program is to model the relaxed behaviors you are trying to cultivate in your youngster.

Stress Causes & Cures

According to Clark (1983, 1986) feeling that one has no control over a situation can be quite anxiety-producing. In her work with the New Age School, Clark has found that children as young as two-years-old have begun to experience stress and tension over expectations about their performance.

On the other hand, Clark says, choice is very empowering. When children are always told what to do, how to do it, and when to do it, they feel out of control; and they do not develop the ability to make good decisions. Parents and teachers can provide clear alternatives, information about the consequences of those alternatives, and a chance to practice choosing among them. In this way, gifted children can come to feel in control of their abilities, their time, and their energy. They begin to believe in themselves and in their power to handle stressful situations.

An effective attitude-enhancing activity involves positive self-talk. Children who habitually make negative assertions in the face of challenge or unknown outcomes ("I can't do this." "This is stupid." "I'm no good.") need help seeing their strengths and practice saying "I can do this." "This is fun." "I'm pretty good at this!" "I'll try it!"

The technique of mental rehearsal can be especially helpful with children. Encourage your child to visualize each step and detail of an upcoming anxiety-producing event. Remember, what event causes anxiety will vary from child to child. It might be going to preschool, attending a birthday party, or playing a competitive game or sport. Picture the place, people, and possible happenings. Encourage your child to see himself or herself carrying out the task, dealing with any problems or obstacles that arise, and bringing it to a successful completion. Together, work out alternative ways of handling the event so he or she will have maximum flexibility when it does occur.

Behavior

Behavior forms another third of the stress management triangle. It involves learning relaxation

responses to stress and tension. Your child's goal in stress management is to recognize the attitudes and behaviors connected with stressed states and with relaxed states, and to learn that he or she can control stress levels. The tips below will help you with the behavioral aspects of the stress management triangle.

▲ **Encourage "one-thing-at-a-time" thinking.** Teach your child to concentrate on one thought or action at a time. A useful concentration technique is to have him or her imagine (with eyes closed) a single digit, sculpted out of wood. Then have your child repeat this number silently for about a minute. When distracting thoughts emerge during this exercise, simply instruct your child to watch them "flow downstream like a leaf traveling down a river."

▲ **Practice muscle relaxation.** A key principle in stress management is that anxiety and deep muscle relaxation cannot coexist. By deeply relaxing tense muscles, anxiety states can be reduced. Autogenic training involves alternately tensing then relaxing. Try this with your youngster. With guidance even a four-year-old can follow.

First, from a standing position, make a fist with your right hand. As you squeeze your fist shut, push your arm away from your body. Continue pushing and squeezing until you feel discomfort in your arm, then quickly release all tension and allow your arm to hang beside your body. Notice how your hand and arm feel. Be aware that you can relax them even more. Allow your hand and arm to relax more deeply. Notice how that feels. Allow your hand to feel very heavy, even a little warm; now notice the difference between your right hand and arm and the left side. [To avoid muscle imbalance, use the same procedure on the left hand and arm.]

Progressive, whole-body relaxation is another technique, in which you try to relax the whole body (without tensing) starting with the feet and progressing up to the jaws by major body sections: feet, ankles, legs, hips, stomach, chest, back, shoulders, neck, scalp, facial muscles, and jaws.

Stress
Causes
& Cures

In guiding your youngster through relaxation exercises, it is helpful to "suggest" the desirable behavior. For example, "Relax your feet [ankles, legs, and so on]. Feel your muscles becoming loose, limp, heavy, and warm. Feel the warmth extend upward through your hips [stomach, chest, and so on]." Proceed slowly, pausing 10 to 15 seconds after each major body section. After about 10 minutes of this, introduce a concentration exercise (like repeating a single digit), so children can reestablish their normal, focused consciousness.

▲ **Practice deep breathing.** There are many kinds of deep breathing methods that also enhance relaxation and reduce tension. Instruct your child as follows: "Sit comfortably with both feet on the floor. Put your hands over your stomach as your breathe deeply. Let your stomach push out when you breathe in and pull in when you breathe out. Close your eyes and slowly breathe in, stomach out. Hold your breath to the count of four, and slowly breathe out. One. Two. Three. Four. [Be sure your child's chest cavity remains basically motionless, with only the abdomen moving in and out.] Imagine any worries or upset leaving your body through your arms and legs and your mouth as you breathe out. Breathe in through your nose and out through your mouth."

▲ **Remember good old-fashioned exercise!** Nothing helps release tension and anxiety better and promotes mental health at the same time. Do not push your child into organized sports, however. That will just add to his or her stress. What's important is some kind of regular physical activity, particularly for youngsters who may be early, heavy readers or engaged in other highly cerebral pursuits much of the time. Simple calisthenics (jumping jacks, toe touching), bike riding, hopscotch, tag—the classic games of childhood—these are all good sources of exercise.

Environment

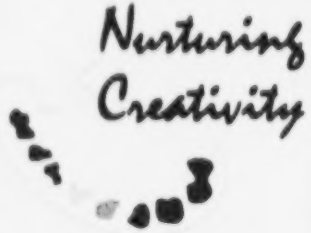
Environment, which forms the third leg of the stress management triangle, refers to those aspects of the child's life that make up the pervasive conditions, primarily at home, under which the child's biological, cognitive, and emotional growth are being nurtured. Here are some tips:

Encourage a stress-reducing diet. Many doctors and nutritionists have suggested that excessive caffeine and sugar intake stress out the adrenal glands and induce tension. Therefore, you may wish to encourage your child to limit (if not eliminate) consumption of foods with these substances. It is always advisable to consult a pediatrician or nutritionist before altering a child's diet.

Allow the "space" for daydreaming . . . And for relaxation, doing nothing, and even just being alone. Build leisure into your child's life and activities. Curb the need to be accomplishing something every minute. Cultivate respect for a slower pace. Encourage your child to pursue a hobby of his or her choosing. Take family vacations.

Respect your child's heightened sensitivities. Helping gifted children both deal with and respond to their emotions and sensitivity to certain global, "adult" issues takes a special effort. Such things must be addressed on the child's level, so that the seemingly enormous and insurmountable burden is lifted. For example, if a child is especially sensitive to world hunger, help him or her find an outlet for such "caring" that is concrete—such as contributing some allowance money to an appropriate cause or delivering food baskets to the local needy.

Be a role model. Probably the most important thing to remember in a stress management program is to model the relaxed behaviors you are trying to cultivate in your youngster. Stress is very contagious. Your nonverbal behaviors (rushing, always seeming pressed for time, being impatient) will affect your child more than your assuring "Relax, don't worry." Here is a clear case where actions speak louder than words. In addition, let your child know that it's fun being an adult, how satisfying your work is, and how gratifying it is to help others. Give them this to look forward to!



Responsibility is an essential ingredient for maturity and creative self-direction.

Nurturing Your Child's Creativity

Questions continue to plague parents and teachers about how to educate youngsters who abound in energy, thrive on risk, and exude inquisitiveness, without killing their capacity for creative images, insight, and fantasy on nonverbal levels. All behaviors highly related to creativity must be linked together in some learning pattern unique to each child.

Torrance and Goff (1990) suggest that parents give children opportunities for creative expression and problem solving; find creative ways to resolve family conflicts, ensuring that each family member receives individual attention and respect; and help children deal with change and stress constructively.

The following at-home strategies for elementary-school-age children will serve to channel and nurture this vital human potential of creativity.

Establish a responsive and expressive climate loaded with materials and a diversity of opportunities for exploring. The materials need not be expensive, but there should be plenty of them. Include lots of old magazines, books, newspapers, games, old clothes, and gadgets. By giving children "space" to peruse and explore such things on their own, you'll be creating an environment that stimulates, challenges, supports ideas, movement, discoveries, and questions. Creativity requires freedom to just "mess around." At the same time, it requires some structure, organization, and a reasonably orderly environment.

Provide encouragement for self-reliance. Insist and expect children to do something and produce on their own, so they can experience feelings of self-esteem and of being responsible to and for themselves. Responsibility is an essential ingredient for maturity and creative self-direction. It is well recognized that children are significantly more productive in divergent ways as their self-sufficiency increases.

Recognize, respect, and give emotional support for questions, mental manipulations, or unusual thinking. Watch for times when your child puts things together in some unique, clever way. To show that you care, listen very carefully to your child's ideas and thoughts. Be constantly alert to the uniqueness of his or her behavior. It is important to show interest and approval, but sometimes just listening or silence can be the best form of emotional approval.

Expect and allow for comfortable regression in growth patterns of your child, even though he or she is gifted. You will help children prepare for occasional anxiety and failure by teaching them to accept mistakes, to laugh at them, but to capitalize upon them and learn from them. Allow time for contemplation, daydreaming, and use of the imagination, or just for being quiet or doing nothing. Be particularly receptive and alert to plateaus in growth, while no apparent progress is being made, and creativity may even decline. Sometimes children will appear lethargic or will complain of boredom during these periods. This is natural, unless the condition extends for weeks.

Do not expect your child always to act logically and be productive. Give him or her space to come to terms with limitations as well as abilities. Always be ready to discuss such things with your child; during low times in particular, give your child opportunities to work things out alone.

One way to allow your child the needed space for regression and contemplation is to provide an unused "pigeon loft," "think tank," "office," or "quiet place" somewhere in the home or outdoors. It can be a closet, a cupboard, underneath a bed, or an unfrequented corner. This place will serve as a psychologically safe haven where he or she can go to fantasize or just to sit and wonder. It should be accepted as your child's special place and not interpreted as a "hiding" place. Be sure he or she knows that while in there, there is no expectation to be practical or productive. Allow time for escape to the "special place" at least once a day. Many creative thoughts follow such incubation periods separated from action and progress—in privacy with

Do not expect your child always to act logically and be productive.

Trust is absolutely necessary for children to feel comfortable taking risks, a basic element of creativity.

one's self.

Allow and provide some balance between interpersonal and solitary experiences. Certainly socialization is important for your child, but so is time alone for inner exploration. If children are hostile at times because they are unable to face themselves, they are certainly not willing or ready to face you or others. Building personal self-worth and self-respect must take priority over a forced togetherness. If children are to be free to be creative they must be secure in separating from you or the group without guilt or rejection. Do not be suspicious of your child's time alone or constantly monitor it. With such freedom, children are more prone to work out their hostilities quietly, and hostility can be a major roadblock to creative productivity. At the same time, be sensitive to your child's need to talk out problems.

Establish well-defined standards of discipline and conduct. Your child should have no doubts about what you regard as right and wrong. What rules there are (and rules should be few, as they are generally conformist in nature and stifling to creativity and independence) must be enforced consistently with fully predictable consequences. At times children should be expected to be "on task" practicing music, taking out the garbage—such times and tasks decided on and regulated by the parent (or teacher when in school). But there should also be free times for children to be involved with their own tasks determined by their own interests. In either case, creativity and high productivity require discipline.

Exhibit an attitude of basic trust that your child will do what is reasonable in a responsible way. Trust is absolutely necessary for children to feel comfortable taking risks, a basic element of creativity. Parents must not become distressed by the many anxieties and stresses of today's growing child. Trust can best be built by noticing the positive ways children operate in spite of all the obstacles they face: their willingness and desire, for example, to please, to do what's right, and to meet their responsibilities at home and at school. Giving them positive recognition for what they do is vital. "I realize you've had a very stressful day, and I appreciate your cleaning up around here as you promised."

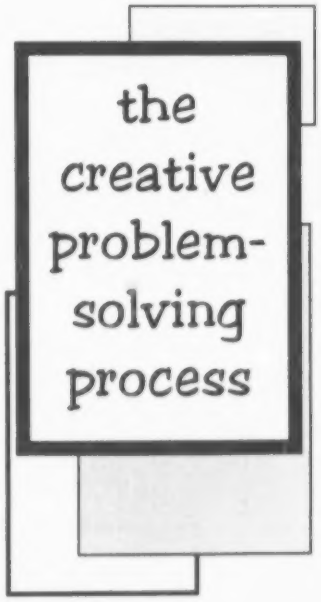
Keep track of the times you allow your child to seek alternatives and make choices. Guard against always dictating to your child what needs doing and how to do it. "Brainstorm" with him or her, asking how many different ways something can be done. Allow your child to make a choice and act on it—whether this involves cutting the lawn in an unorthodox pattern or design or deciding which illustration best accompanies an original story. Supporting your child by trusting him or her to make choices is the best way to help build a good self-concept. The child who feels good inside will risk the unknowns in attempting to pursue creative paths.

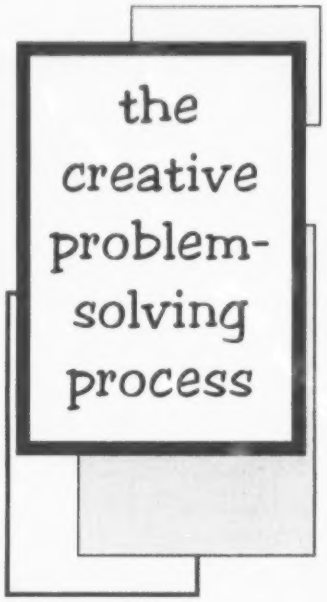
Applying Creativity to Family Conflicts

Creativity can be applied in resolving family bickering and conflicts. With the right kinds of interaction and practice, you can achieve wonderful results. When your gifted children learn the following techniques of "creative problem-solving" along with you, they will be intrigued, and tensions among family members often vanish as all work together to find solutions.

There are many variations of the creative problem-solving process, but here is a modification of one that is widely used all over the world (Treffinger, Isaksen, & Dorval, 1994).

Step 1. Recognizing Problems. The first big step in the creative problem-solving process is recognizing and admitting that there is a problem. A person will not be motivated to think of possible solutions for a problem and then to carry out a solution until he or she recognizes that a problem exists and accepts responsibility for meeting the challenge. If the family is involved, all members must recognize that the problem exists and accept responsibility for doing something about it. Conflicts in families about the use of space and equipment, respecting one another's property, and waiting turns are the kinds of problems that affect all members of a family and





which need to be recognized and accepted as family problems.

Step 2. Figuring out What the "Real" Problem is. The second step in the creative problem-solving process is figuring out the real problem. As a family searches for information about a problem and looks at the difficulties involved in it, a "mess" of data will accumulate. However, it is very important to keep an open mind and postpone judgment until there has been a thorough job of fact finding and problem definition. You must determine what specific problem, if solved, would clear up or eliminate "the mess." It is usually a good idea to state this problem in the form of a question that, if satisfactorily answered, will remove all or most of the difficulties. It is very helpful to begin the statement with "In what ways might this family . . . ?" or "How might our family keep the floors clear of toys and games?"

Step 3. Producing Alternative Solutions. The third step in the creative problem-solving process is to produce many alternative solutions. During this step, it is important to postpone judgement and remove the usual blocks to creative thinking—habits, conventions, and conformity. The following four rules developed by creativity researcher Osborn (1957) are useful in doing this:

a. Rule out criticism, at least while you try to think of possible solutions.
b. Welcome wild ideas. Even offbeat, impractical, silly ideas may trigger a practical "breakthrough" idea that might not otherwise occur.
c. The more ideas the better. The more ideas produced, the better the chances of finding useful, new ideas.
d. Seek combination and improvement of ideas. Encourage group or family members to "hitchhike" on one another's ideas: for example, combine two or more suggestions into a single solution.

Step 4. Evaluating Ideas. When family members defer judgment, all kinds of ideas occur. Their evaluation of these ideas becomes the next major task. To select the best, develop criteria—concrete standards for judging the possible solutions. These may include such things as

cost, time required, usefulness, social acceptability, and other considerations. The application of criteria helps to identify the most promising solution. In some cases, even when the ideas for solutions are sorted out, it still may be possible to combine two or more solutions to create a better one.

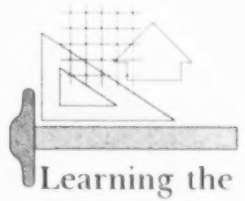
Step 5. Developing a Plan of Action. After the most promising solution has been determined, there is the challenge to make it workable. In implementing the solution, further changes and additional possibilities may occur. It is necessary to think of the possible consequences of the application of the solution, as well as the possible obstacles to its implementation. All of these considerations should result in a successful plan of action.

Inventing

If you want to help your gifted child develop creative thinking skills and spend time together engaged in a fascinating activity, try inventing. Parents and children can learn it together using a step-by-step technique.

Learning the process of inventing is especially valuable for gifted youngsters because it develops their problem-solving abilities and creativity in the broadest sense. They learn to think systematically by correlating ideas rapidly. They learn to recognize a specific problem and solve it. The outcome is practical, and the process is exciting.

Do not begin with complex ideas or complex mechanical devices. Children can improve such things as a pencil, comb, blackboard, chalk, eraser, hammer, or screwdriver. A complex laboratory is not necessary. If a child actually wants to manufacture his or her invention, this can often be done with simple materials and can start with a rough sketch. The main purpose of instruction is to see that children learn the thought process that underlies step-by-step inventing. It doesn't really matter whether the invention is something that has already been invented; it is



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A practical "course" on invention includes six main divisions:

Introduction,
Identification,
Foundation,
Data,
Imagination,
Limitations.

novel to them.

A practical "course" on invention includes six main divisions: Introduction, Identification, Foundation, Data, Imagination, and Limitations. These consist of a number of steps that should be applied to any problem in order to arrive at a usable invention that will solve it (Shlesinger, 1973).

Introduction. Begin your introduction by developing a definition of "invention" with your child. You may start by looking up the word in the dictionary. One first grader in an inventing class said, "It is making something that has never been made before." This is an astute definition. Although breakthroughs (X-ray, atomic energy, the laser) do occur, most inventions are based on the improvement of existing conditions, developments, devices, or technology.

The introduction will also include a general history of the development of invention, which will show how a specific need for an invention may arise. Start by discussing that there are eight major areas of invention: shelter, food, clothing, communication, transportation, health, weapons, and culture. For example, see if your child can think, in a general way, of how invention has affected the development of clothing from primitive times to the present—for example, sewing, weaving, iron needles, cotton gin, sewing machine, washing, and synthetic fabrics.

Identification. This simply means becoming aware of the three ways to recognize problems that can be solved by invention. These include: 1) listening for complaints, 2) looking for difficult and inconvenient situations, and 3) being aware of breakdowns and injuries to persons or things. By keeping in mind these three methods of finding problems, your child will soon have a long list of problems to solve and will be able to select an area in which to work.

Foundation. To help your child gain a foundation of knowledge for the particular area in which he or she wants to invent, have him or her develop a general history of an item that may

be improved. Say it is a simple spoon. Your child can trace the spoon's development from the crude ladles used by primitive societies to small spoons such as teaspoons, and then to large "spoons" such as steam shovels.

An excellent resource, which is fascinating to children, is "The Story of the U.S. Patent and Trademark Office." It lists inventors, briefly describes their inventions, and gives the dates when these were patented. You can obtain a copy by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Data. This category is designed to teach the young inventor to correlate information. He or she learns to obtain data and reach solutions by asking the right questions. Teach your child to ask many detailed and specific questions about a problem area in which he or she would like to invent. First: "What is it?" For instance, if you were trying to solve a problem about a matchbook to produce a better result, you would break down the major physical components of the book: the cover, striker, match, and fastener. What are they made of? What about appearance? Weight? A change in weight can lead to a new invention. If the weight of a blackboard eraser is reduced by hollowing the upper handgrip, a sliding cover can be added to provide a receptacle for holding chalk.

The next question in data gathering is "Why does it exist?" Once the young inventor understands what need an invention serves, he or she can anticipate and create improvements. Be sure your child does not take anything for granted and describes the device in detail. How does each part function? Under what conditions? For example, realizing that trying to light matches in the wind is difficult, the inventor might consider constructing a matchbook with a wind guard. Recognizing the limitations of a device produces the rationale for an addition or improvement—the "why" of the new invention.

Imagination. Once your child has collected relevant information by asking and answering the questions, he or she is ready to use the imagination to develop solutions to problems. A good

"What is it?"

"What are they made of?"

"Why does it exist?"

way to begin thinking imaginatively is to create alternative images of, or change the words used for, a tool or problem area. Considering synonyms for blackboard eraser—eradicator, wiper, scrubber—can lead to the generation of new ideas that might enable the young inventor to think of changing the structure of the eraser to incorporate a liquid, a chemical compound, or an electronic device for removing the writing from the blackboard. The young inventor realizes that he or she cannot focus on only one aspect of the problem.

Approaches leading to a new invention can include combinations of two or more inventions, substitution of one part for another, the rearrangement of parts, or the addition or deletion of parts. For example, a wind guard on a pack of matches would replace the standard cover (deletion, substitution), and at the same time function as a cover (combination).

Limitations. Once your child has decided to pursue the development of a specific invention, it is important that he or she considers any limitations that might be imposed by law, material, time, space, or use, in order to create the most efficient device for the intended purpose. For example, would the wind guard be too costly to make or cause the pack of matches to be too cumbersome to carry in a shirt pocket?

Bookmaking

Making books or booklets at home is an ideal activity for gifted children of all ages and their parents, and offers unlimited opportunities for family togetherness. Creating a product gives the gifted child a necessary outlet for self-expression. If your child is too young to write complete sentences or paragraphs, simply jot down what he or she says. The important experience gained from most of the book topics to be discussed is that of generating ideas, not the physical act of writing (Perry, cited in Alvino, 1985).

The size and format your child decides to use will directly affect the bookmaking process itself.

In fact, it is a very aesthetic process, which requires (and can develop) a sense of proportion and some understanding of the relationship between the whole, its parts, and the book's function. For example, a tiny booklet made of several 3- by 5-inch slips of paper folded over and stapled lends itself to a sentence per page with perhaps a simple drawing per thought. An 8 1/2 by 11-inch page gives space for much more: one or more paragraphs or several detailed illustrations. An even larger size is a scrapbook-like creation, with photos or cutouts glued in as the art.

The book covers themselves can be works of art. Artistically gifted children may enjoy designing the outside more than composing the contents. For younger children you can provide a wallpaper sample book from which to choose appropriate patterns for book covers, or use colored construction paper, adhesive contact paper, or Sunday comics for pasting on cardboard. The idea of creating collage covers will intrigue the budding author-illustrator. Pieces of magazine photos and ads can be cut and pasted to form an interesting pattern that relates in some way to the subject of the book. Big letters from ads can be cut out for a variety of book titles.

Once provided with some choices, gifted children often know exactly how they would like to pursue a project. They might prefer to write the book on separate sheets of paper until the ideas run out or the subject seems adequately covered—then staple the pages together (or sew them, punch holes and use paper fasteners, or design some original way of putting the material together). Or sometimes it may work to prepare the mechanics of the book first, then write it—you know it is done when the pages are used up.

The range of bookmaking options is vast. Many of the following suggestions for topics are humorous, since gifted youngsters delight in giving their unique and advanced sense of humor free rein. Let your gifted child's interest determine what type of books he or she undertakes.

Alphabet Books

These need minimal explanation and can be created by children ages two to ten. Simply write

"A" on page one and the child seeks appropriate examples of "A" words. Pages may be filled with magazine cutouts, handmade drawings, lists of "new" or uncommon words compiled from a dictionary, things that end in the chosen letter, or whole sentences with every word containing an "A."

Weird Questions

This book is made up of unanswerable, open ended, and mind-boggling questions—one per page with a sketch of either the question or a possible (even outrageous) answer. Both you and your child can take turns generating these questions and answers. Example: "How many grains of sand are there on the beach?" The picture could show someone with a handful of sand, with a caption or cartoon-style balloon saying "Four quintillion and three, four quintillion and four. . ."

What Would Happen if . . . ?

This is a similar concept, yet it opens new possibilities for challenge and original thinking. You can share with your child the task of devising open-ended, "what if" questions. They can be nonsensical, and the answers can be as illogical as the child wishes. "What would happen if . . . kites were made of lead, horses were invisible, ice cream trucks played Beethoven." Or they can be more or less realistic, such as "What would happen if oil were discovered in Brooklyn, or under Windsor Castle?"

Critical Thinking

Critical thinking encompasses both the cognitive (intellectual) and affective (emotion-involved) aspects of thinking. It requires problem identification and solutions, perceptual judgments, analysis, synthesis, evaluation, and decision making.

What is a critical thinker? According to the developers of the Cornell University critical thinking tests, a critical thinker using intellectual skills is characterized by proficiency in making certain kinds of assessments (Ennis & Millman, 1982). This thinker can tell when a statement follows from the premises; knows if something is an assumption; can determine if an observation statement is reliable; can assess whether an alleged authority is reliable; can determine if a simple generalization, hypothesis, or theory is warranted; can tell when an argument depends on an ambiguity or if a statement is overly vague or overly specific; and knows if a reason is relevant.

In addition, a critical thinker using instinct (affective processes) has been defined as doing the following: remains open-minded about new ideas; refrains from arguing about something when he or she knows nothing about it; knows when more information is needed about something; knows the difference between a conclusion that might be true and one that must be true; knows that people have different ideas about the meaning of words; tries to avoid common mistakes in one's own reasoning; questions everything that doesn't make sense to him or her; tries to separate emotional thinking from logical thinking; and tries to build up vocabulary so he or she can understand what other people are saying, and can make one's ideas clear to other people (Harnadek, 1981).

Critical thinking encompasses both the cognitive (intellectual) and affective (emotion-involved) aspects of thinking.

Author, musician, and comedian Steve Allen (1982) offers similar suggestions in a record album for children called *How to Think*, in which nine rules for logical thinking are presented amid original songs and stories that exemplify the rules. They are:

1. Control the emotions.
2. Understand the difference between fact and opinion.
3. Look for the evidence before making up your mind.
4. Don't kid yourself: Tell the truth to yourself as well as to others.
5. Understand the difference between the concrete and abstract.
6. Use words carefully.
7. Remember that no two things are ever the same.
8. Don't be afraid to change your mind.
9. Remember that much truth is relative (it's dependent on point of view).

Given these considerations, a definition of critical thinking may be summarized as follows: critical thinking is a cognitive, affective, and creative mental activity that involves analytical and open-minded reflection applied to all kinds of assertions and situations (Alvino, 1978).

Philosophical thinking is the effort to look beneath the surface of things—language and behavior—to find out.

Philosophical Thinking

Parents can help enhance their children's critical thinking skills and point their children toward independent, logical, and ethical thinking by encouraging philosophical thinking. Philosophical thinking is the effort to look beneath the surface of things—language and behavior—to find out what they are based on. Through philosophical thinking children can discover alternatives for looking at things, impartiality, consistency, the feasibility of giving reasons for beliefs, the need for comprehensiveness, the influence of particular situations, and what whole-part relationships mean.

You can foster philosophical thinking by asking your children certain kinds of questions. The questions below were developed by the Institute for the Advancement of Philosophy for Children (Lipman, Sharp, & Oscanyan, 1980) as part of a program now used in several thousand classroom across the country.

In asking the questions, it is best to make an effort to appear wondering and curious yourself and to respond positively to your children's remarks. Relate the subject matter to the children's own experiences, as you coax them to move the dialogue gradually to a more general or universal level. Make every effort to avoid manipulating the situation to foster your own point of view, and encourage them to clarify their own points of view. These questions can be applied to any subject matter and will give you a sense of the form a philosophical dialogue may take. Of course, every question will not fit into every discussion. Following each question is a brief explanation of what the question is trying to elicit in a child's response.

1. Why? Requests an explanation for the basis of a child's response.
2. If that is so, what follows? Asks children to elaborate, extrapolate, draw a valid inference.
3. Aren't you assuming that . . . ? Asks for an explanation of premises upon which a statement or argument might be based.
4. How do you know that? Calls for more information, a source of information, or for a child to explain his or her line of reasoning.
5. Is the point you are making that . . . ? Requests confirmation for the parents' (or teacher's) clarification, focusing on the main point of a child's response.
6. Can I summarize your point as . . . ? Asks for the child's confirmation of the adult's restatement or condensed form of his or her statement.
7. Is what you mean to say that . . . ? A rephrasing that requires children to interpret their statements and be certain of their meaning.
8. What is your reason for saying that? A request for a rationale that offers criteria

Being gifted does not mean that everything in school—or in life—will come easily.

for making a certain judgement, as well as a justification of that rationale.

9. Doesn't what you say presuppose that . . . ? The parent or teacher points out assumptions that might be hidden in a child's argument or point, requiring the child to explain the validity of his or her assumptions.
10. What do you mean when you use this word? A request for precise meaning and contextual usage.
11. Is it possible that . . . ? The parent or teacher offers other possibilities and points out possible contradictions and inconsistencies in the child's argument.
12. Are there other ways of looking at it? A call for alternative perspectives, connections. A check on objectivity and impartiality.
13. How else could we view this matter? Gives children a chance to be creative. Stresses flexibility and open-endedness.

Study Skills: Secrets for School Success

Gifted children usually do well in school, so they must know how to study. Right? Not true. Being gifted does not mean that everything in school—or in life—will come easily. In fact, there are special pitfalls for gifted youngsters, who often sail through in the early grades. They may not seem to need study skills in the beginning, and then, when they hit the first rough spot in junior high, high school, or college, they often come up short.

Teachers rarely teach students how to study; somehow they are supposed to absorb these techniques by osmosis. Gifted students are particularly receptive to shortcuts and plans. Following are some basic study techniques for parents to share with their gifted children about homework, reading to remember, memory methods, and note taking. Many of the ideas presented here are really strategies the child will use all of his or her life, and it is never too early or too late to acquire them.

Homework Hints

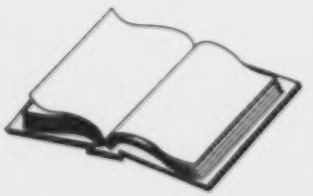
Encourage your children to think about the order in which they do their homework subjects and to do the hardest subject first. Getting the hardest subject out of the way is a great help. Your child's energy level may go down while tackling it, but as he or she starts to do the easier subjects, it will pick up again. As the child finishes with favorite subjects, interest and energy will be high. Of course, with gifted children, the hardest subjects could be their favorites!

Another important technique to share with your children about homework is the idea of taking breaks. As they plan their homework schedules, have them plan to stop now and then. After a certain amount of time the brain needs a relief from concentration. Breaks are also needed to allow the subject to move from short-term memory into long-term memory. Five minutes of stretching, getting a drink or snack after twenty minutes of study can do wonders. But warn them of the trap of starting to watch TV or to play with a game or puzzle—anything that will keep them from coming back to homework.

Reading to Remember

Most gifted students do not have much difficulty with their textbooks in the lower grades, but they may at some time in the future. Either the arrangement within the book is poor or the material itself is complicated. The key to textbook reading is to preview before doing the reading. Students will get more interested in the subject of the textbook and will get more out of it if they preview it in advance.

To preview a whole chapter have the child read the introduction, conclusion, questions at the end, and then skim each page, reading everything printed "differently"—the boldface print, italics, captions, charts, and graphs. Give him or her this advice: read the introduction and you will know what is important to come. Do not read the chapter—yet. Read the conclusion and



you will know what was important in the chapter. Still do not read the chapter. Read the questions at the end and see how many answers you have already found from the introduction and conclusion. Even now, do not read the chapter.

This preview process (once it becomes a habit) will take about fifteen minutes for a forty-page chapter. Now the child knows what is important, interest is raised, and studying will not be as boring. If the textbook is well presented, sometimes all the bright child has to do is skim it by this method.

Now it is time to read the chapter. The trick in reading the material is to read in small chunks and then ask, "What have I just read?" If a child can read three pages and remember what is in them, or even one page and remember it, his or her memory is better than average. Start the child with about a paragraph. When the child has finished the paragraph he or she should answer the question "What have I just read?" This will take the material from the short-term memory and put it into long-term memory.

If the method of previewing and reading in small chunks becomes a habit, your child will see that textbook reading is not nearly as difficult—or boring—as it sometimes seems.

Memory Skills and Mnemonic Devices

One very simple way for a child to improve memory—and test scores—is to write things out. You should never give your child a spelling test, for example, and have him or her answer it orally (except in preparation for a spelling bee). The teacher is not going to do it that way. The students are going to have to write the words. It does not matter how correctly they think or how much they say, if they cannot write the answers, they cannot prove to the teacher that they know the material. Never read them science, social studies, or English questions and have them answer orally, either. Have them write or outline the answers to prove they know them.

On a higher level, did you ever anticipate an essay question on a test? Surely you have! Encourage your child to write out the answer, or at least outline it, in addition to thinking it through and discussing it. When the question appears on the test, the answer is more likely to flow from the pen. The process of writing or outlining it to prove that he or she knows it will take about 5 to 10 minutes, and through following this practice, students will also discover that they do not know everything. They can look up what they do not know.

Another excellent memory method is the use of index cards. When most students study for a test, they do not know what they do not know! If they did, they would look it up, and they would know it. Many students who may study 60 minutes for a science test, for example, will spend 45 minutes studying what they already know. What a waste of time!

Well, how can they find out what they do not know? It really is not hard to do. It takes only a few minutes a night for each subject and avoids the ever-present danger of falling behind and having too much to do at the last minute.

Are not the new words or concepts in each subject the important things? Have your child write each new word on one side of an index card, and on the other side, hidden from view, will go its definition; the person/what he or she did; the date/what happened; the English word/the foreign word; the chemistry symbol/what it stands for; and the math formula/when and how it's used.

Now, the night before the test the child looks at 15 pages of notes and studies all the index cards. Because the teacher will mix the questions from the chapter, the child will shuffle the index cards. As he or she goes through the cards, the information he or she knows is put on one side and the cards to study on the other. Following this method, the child has found out what he or she does not know and can concentrate study time accordingly.

What should students do with their index cards when the text is read to the end? Save them for

exams. Look over 150 pages of notes, but study 10 chapters of index cards. What can they do with them at the end of the year? Give them to a younger brother or sister or to a friend. Another trick that children enjoy is to speak their notes and index-card information into a tape recorder to play back any time they wish. A good time is in the morning while getting dressed.

Review strategy can also make a big difference in remembering information successfully. If youngsters realize that they may forget 80 percent of what they learned that day, they will see how important the following advice can be: Review the notes, or chapter, three times—the night of the class, two nights later, and the night before the test.

The first night, review by going over the material and making up index cards. Two nights later (within 48 hours) review the cards again. For example, on Tuesday night make up the index cards from Tuesday's class. On Wednesday night make up index cards from Wednesday's classes and review Monday's cards, and so on. Once the student falls into this pattern, the review becomes easy, and when he or she studies the cards before the test, it is truly a review. Your children will find that if they can trace a memory path three times over a period of days they will find it almost impossible to forget the material.

Finally, do not forget association tricks and similar mnemonic devices. These are fun and extremely effective. Have you ever heard of the sentence—using the first letters of the words—for learning the spelling of arithmetic: "**A** Rat **I**n **T**om's **H**ouse **M**ight **E**at **T**om's **I**ce **C**ream"?

Note Taking

As children advance in school, they will gradually begin to need good note-taking skills, and the very bright child can effectively use these skills early. Here is a basic, extremely helpful tip to give your child about note taking: Do not hold the pen when taking notes. Do not hold the pen when the teacher writes notes on the board, when the teacher lectures, or while reading the textbook.

Sound crazy? Maybe, but what does the student do when the pen is in his or her hand? Play with it? Chew on it? Fill in the dots? Doodle? These are all distractions. But, worst of all, one tends to write things, without even knowing what one is writing. Tell your child to listen and write only when he or she understands. The child will take fewer, but better, notes.

Now that your child has the pen out of his or her hand, here is a simple form to use for taking better notes. If your child uses standard spiral notebooks, write only on the right-hand pages and save the left-hand pages for the future (drawing a line to divide the pages in half vertically works well, too). On the right will go whatever the teacher says, whatever is copied from the board, or whatever ideas come from the textbook. On the left will go two kinds of items—your child's own ideas and the teacher's questions.

Has your child ever thought of an idea over and above what the teacher was discussing? If he or she writes these ideas on the left side they will be easily accessible and not forgotten when it is time to write essays and term papers. These original thoughts are the ideas teachers are always hoping to see. Too many students just regurgitate exactly what the teacher said in class.

Besides putting their own ideas on the left, encourage your children to put the teacher's questions there, too. Ask your children if they have noticed that teachers often ask questions during class. Even if the teacher answers them on the spot, the children should write them down, because if a teacher asked a question once, he or she is very likely to ask it again—on a test.

How do teachers often construct tests? They automatically go back to the same questions they asked in class. If the only notes your child takes are the teacher's questions, and then looks up the answers, the child will have perfect notes. If two or three students use the technique and compare questions and answers before the test, they will see that they have studied almost every question on the test!

Academics at Home

Academics at Home: The Core Subjects

Writing

The plight of the gifted youngster learning to write is especially ironic. Because most gifted children are good memorizers in school, they do well on the grammar exercises and tests. And because most are achievement-oriented, they are eager for their papers to meet the mechanical standards being used to measure their work. Thus, they labor diligently at their assigned tasks, believing they are learning how to be better writers—and they get the grades to "prove" it.

However, effective writing instruction can be summarized in two deceptively simple statements: (1) children learn to write by writing (and reading); and (2) teachers must interact with children as editors, not judges.

Studying grammatical theory (word and sentence classification, diagramming, usage) often results in negligible improvement in students' working grammar. Likewise, children tend to learn language rules indirectly—through exposure and practice. Therefore, the primary concern of teachers marking papers should be with content and organization; while mechanical errors should receive secondary attention.

The use of the word "secondary" is especially important. No one is arguing that children should not be taught to punctuate and spell correctly. Final drafts should be mechanically correct as well as expressive, thoughtful, and accurate. Too often, however, the only "revising" children are asked to do involves correcting spelling and punctuation errors.

If children are to write well, they must be taught specific ways to get started, to generate ideas, to shape, refocus, and edit their papers. They need to be encouraged to write tentative outlines and

drafts. They need to be taught that revision is an essential, continuous part of the writing process; and they need comments and suggestions that will help them understand what and how to revise.

Parents should also look at what happens to their children's finished work. Renzulli (1977) argues persuasively that gifted children need opportunities to carry their interests through to the real world. Renzulli means that children's writing must routinely go beyond student-to-teacher communication. He calls for broader and more deliberately chosen audiences than those reached through the common practice of posting "good papers" on the bulletin board. Letters to the editor, editorials, feature articles for school and local newspapers, letters written to individuals and organizations on behalf of causes or ideas a child believes in—these as well as stories, poems, and essays represent publication opportunities in the real world.

Nurturing Writing Ability at Home

Parents can do a great deal to help talented youngsters at home. Taking your child's writing seriously—or interest in writing—is of major importance. Research and experience demonstrate that not all gifted children have exceptional writing skills. However, it could be damaging to a youngster who has great interest, but does not seem exceptionally talented, to make that judgment too soon. A refined talent for writing, unlike a talent for spelling or doing long division, depends on age and experience for its nourishment. A passion for words themselves, on the other hand, is a gift that may appear early in your child. Although this passion—which could surface as writing talent later—is a kind of giftedness that cannot be measured, it can be nurtured at home.

As stated above, more than other skills, writing benefits from the writer's age and experience. Young authors, however, need not be thwarted by youth. He or she may have a gift that reveals itself not as an astonishing achievement, but rather as a persistent passion, a rage to place order upon language, and the young author can be shown ways to make that order original and powerful.

Academics at Home

Academics at Home

For example, at the heart of good writing is surprise. The greatest literature will surprise forever. Small, persistent surprises crafted by the writer because of the way he or she sees specific things produce fresh writing. A careful description of a particular person or place, for example, will surprise and cause the child to remember, unexpectedly, a person or place like the one in the book.

Whatever you can do, then, to encourage your child to make detailed observations—free of gross generalities and clichés—will help the writing. Tell him or her that writing is enriched by specifics and details. Journals and diaries—some to be read by others and some to be kept private—are invaluable. One section of your young writer's journal might contain only descriptions of specific persons: friends, enemies, and grandparents. These persons are known by what they say and by the sound of their voices; they are known by what they wear, how their breath smells, the tint of their face powder, and how their skin feels when you shake hands with them or give them their change at the cash register. Careful descriptions of places, accounts of trips, and narrations of experiences will also clarify and sharpen your child's writing skills.

Your child's journal could also contain a faithful account of dreams. Dreams create new situations from the sights and sounds of our daily lives in the same way that a poet will bend, extend, and otherwise transform ordinary images so that they reach beyond everyday life. Dreams can include daydreams and intentional distortions of reality, such as little lies that begin in the physical world and then creep imperceptibly into something rich and strange.

Diverse reading and experience, detailed discussions of movies and television shows, word games, encouragement of the tendency to see things differently—for example, how the world would look from the point of view of a chair—honest examination of details, candor that is often impossible in conversation with parents and friends, and the willingness to write in the clearest language at his or her command—these are the things your young author requires if this gift is to be cultivated and not wasted.

The writer has to write and to keep writing and rewriting. Writing about a thing in a general way, he or she may lose it forever; but conversely, by seeing its every blemish, as well as its every perfection, he or she may cause it to live forever.

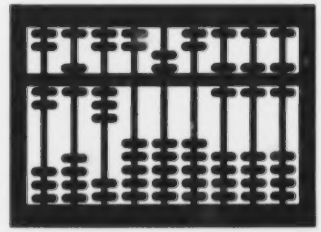
Remember when reading your child's writings not to over correct them. If you are invited to read something, you might ask, "What do you want me to focus on—your ideas, plot, spelling?" Don't try to fix everything; your child may give up in defeat.

Math

Parents Can Identify Early Math Ability

Here is a checklist of behaviors to look for in your child as he or she grows up. A child gifted in math may possess several of these talents.

- **Ability to classify and arrange objects in a series.** A mathematically gifted three-year-old will be able to arrange seven or eight objects in order of size while most three-year-olds can only arrange three.
- **Rapid comprehension and generalization.** At six, the child may use a thermometer as a tool to add and subtract.
- **Ability to organize data and see patterns.** A precocious fourth grader may determine the odds on any combination of rolling dice.
- **Original approaches to problems.** A gifted fifth grader may use human body proportions to determine the lengths of different parts of the Statue of Liberty.

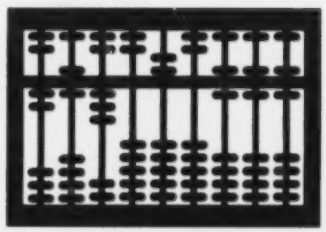


- **High test scores—but not always.** Tests must be carefully chosen to measure mathematical ability per se and not be tainted by other factors, such as verbal deficiency.

You may suspect that your child is mathematically gifted, but that a mismatch exists between the student and the mathematics program (Miller, 1990). What should parents look for in the mathematical education of their gifted child? According to Martin L. Johnson, director of the Arithmetic Center at the University of Maryland, the standard identification and teaching approaches in math are too "heavily computational"—that is, children are required to do too much addition, subtraction, multiplication, and division.

Describing research by the Russian psychologist V.A. Kruteskii, Sheffield (1994) describes mathematically talented students as viewing the world from a math perspective. She says, "these students strive to make sense of the world by noticing spatial and quantitative relationships and connections in everything" (p. 3). The differences in ability are more qualitative in that these students display characteristics of perception, awareness, and deeper understanding of the concepts and patterns around them.

Making it Add Up for Young Kids



There are many ways parents can promote their child's innate joy in patterns. "One, two, three, four, five . . . ." a toddler enjoys chanting, and relishes the admiring attention adults give to this particular chant. It can be recited before the child knows the meaning of the words, just for the fun of human interaction. Later, when the child suddenly realizes that saying, "Three!" may bring more cookies than saying "two," it is already possible for him or her to ask for four or five cookies without learning any more words.

Use concrete examples: Once your child has connected counting with the concept of numbers,

there are endless opportunities for the youngster to apply mathematics to life. "Let's count the chairs in the waiting room." "Let's count the crocuses." "Let's count the cars we pass." Unless the road has too many or too few cars, this last one can keep a child happily absorbed learning ever-larger numbers with only minor distractions to the driver. It's also a good way for keeping squabbles to a minimum in driving the preschool car pool.

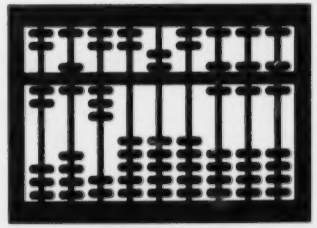
If your child has been counting for a while, it takes only a little extra work to teach the concept of addition. While making conversation at dinner, why not add the number of spoons to the number of forks to get the number of utensils? (An advanced lesson would include knives.) If you are waiting in a doctor's office, your child can add the fingers you are holding up in your left hand to those in your right to get the total number of fingers you are holding up. It is more fun than deciding which child in the waiting room gets the doctor's only hobbyhorse. There are enough fingers for all.

Once your child knows what it means to say "two plus one is three," learning addition facts can be great sport. On long drives and on public transportation with your youngster, keep him or her entertained by seeing who can add sums rapidly like "two plus three." Later, of course, add "seven plus eight."

Little boys are given blocks more often than little girls, and teenage boys are better at spatial relationships than teenage girls. Is there a connection? Most mathematicians believe so. Blocks are an important learning tool for both your daughter and your son.

If you can afford something special, order Stern blocks from Houghton Mifflin. The "one block" is a green cube, the "two block" is two connected purple cubes, and the "three block" consists of three white cubes in a row. The complete set is colorful and can be used to make many patterns. Teach addition by putting the blocks end-to-end.

Cuisinaire rods are more appropriate than Stern blocks for school-age children because of their



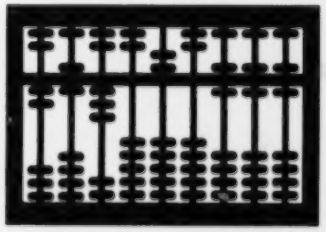
lower cost, but the large Stern blocks are easier for preschoolers to hold. Keep your set of Cuisinaire rods handy for visitors of all ages. They never fail to keep guests under the age of eight occupied for a long time—and often entertain visitors well over that age!

Take it in Small Bites

Here's how one parent explained why "x times y equals y times x" to both of her children. Of course, she didn't use x's and y's. She asked them to think of two dogs standing in line and consider how they would count the total number of legs. There are two "fours" of legs: the right legs and the left legs. Or you can think of there being four "twos" of legs—the front pair of the first dog, the back pair of the first dog, the front pair of the second dog, and the back pair of the second dog. Thus two fours is the same as four twos.

The same parent got a piece of paper and showed the child that there was nothing special about two and four; the same thing is true of three and four. Three rows of four dots each will equal the same number as four rows of three dots each:

Figure 2. Analyzing dots.



The concept that "x time y equals y times x" for all x's and y's is called the "the commutative law for multiplication."

Do not make drill a drudgery. Learning multiplication tables or addition facts is not math, it is rote memorization. Basic skills are essential for pursuing higher mathematics—the exploration of patterns, the communication of patterns through symbols and words, and the use of patterns to solve problems.

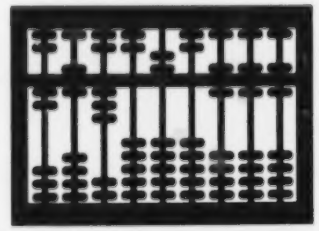
"Not my kids," you may groan. "Not with the way I've always done in math!" You, too, whatever your mathematical background, can experience the great joy when your children master a difficult but vital subject. If you suffer from a case of math anxiety, you know that is something you do not want to pass on to your children. You can also know that you can count and add numbers under ten as well as the next adult. These are the intellectual credentials your child needs.

Making Math a Natural Pleasure

Young children can grasp surprisingly advanced mathematical concepts if the ideas are presented in terms that kids understand. You can introduce them to negative numbers, octal and binary number systems, topology, and other mathematical concepts through simple games and puzzles.

Draw a numbered scale from -10 to +10 on a two-foot-long piece of cardboard. Then make a deck of cardboard cards numbered in sequence from -10 to +10. Kids can use a nickel, dime or penny as a playing piece. The players start at zero. They take turns drawing cards from the shuffled deck. If one draws a +7, she moves her playing piece 7 spaces toward the +10. And so on. The winner is the person who reaches either the -10 or the +10 first.

Here is a game called Romaluvia to teach the octal number system. Kids love to play "store" and Romaluvia is a fun variation. Pretend that you and your child have won a shopping spree on the planet of Romaluvia, whose inhabitants have only eight fingers. You play the role of a Romaluvian merchant, offering your child such fabulous buys as a "genuine pangi-pangi sweater

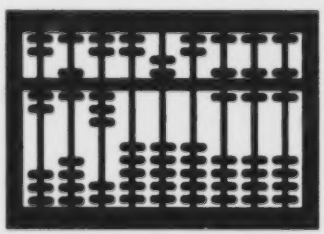


imported from the planet of Tofu and selling for a mere 13 pennies." The catch is that it's 13 Romaluvian pennies (that is, 13 in base 8; 1 in the "eights place" plus 3 in the "ones place," which equals 11 in base 10), and your child has to give you the exact change to be allowed to buy the sweater.

The binary system is a natural one for "secret codes." (In the binary system, you use only 0 and 1. The place values progress from right to left: ones, twos, fours, eights, sixteens . . .). One resourceful parent started by showing her daughter how to write her phone number using the binary system. Later, she wrote coded messages in which each letter of the alphabet was represented by a binary number corresponding to its alphabetical sequence (A=0001, Z=11010).

A Magic Strip: Topology is a system of geometry that deals with the properties of shapes rather than their measurement. You can introduce youngsters to topology by making a Mobius strip (named after mathematician August Mobius, 1790-1868). Cut two 1 1/2 inch-wide strips from the long side of a piece of typing paper. Bend one into a hoop and tape the ends together. Do the same with the second, but in doing so, hold one end fixed and twist the other 180 degrees before taping it. This one is the Mobius strip, and it is quite different from your first strip. For one thing, an ant walking on the plain strip would have to cross an edge to get from the outer surface to the inner surface. Not so with the Mobius strip. It has only one surface! Prove the point—to yourself and to your child—by drawing the ant's path with a pencil.

Now comes kid's favorite part. First cut your playing strip in half lengthwise with scissors. You end up with two hoops. But what happens when you carefully cut your Mobius strip lengthwise down the middle? Try it and see.

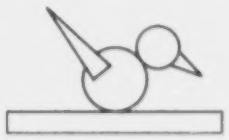


Shapes All Around Us

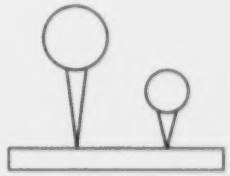
The preschool child is ripe for an initial exposure to geometry. When the situation permits, point out geometric shapes such as circles, squares, triangles, and rectangles in familiar, everyday

objects—furniture, buildings, artwork in picture books, for example. Take advantage of opportunities to broaden your child's mathematical vocabulary by introducing ovals and their relationship to and difference from circles, pentagons, octagons (stop signs!), and diamonds. Help your child to distinguish between squares and other rectangles and to name objects that are examples of each.

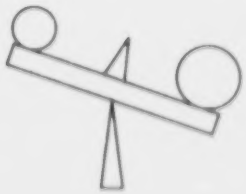
Develop creativity by challenging your child to make a variety of objects from the same basic shapes. For example, given a large triangle, a smaller triangle, a large circle, a smaller circle, and a rectangle, your child may put together these figures:



a bird on a branch



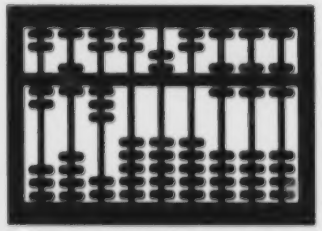
two ice-cream cones on a tray



stones on a balance

a toy on a wagon

Figure 3. Shapes all around us.

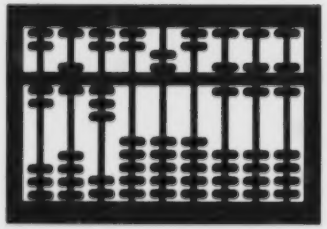


Almost everyone has at one time or another made "snowflakes" by folding paper and making cuts on the folds to create symmetrical designs. What you may not realize is that this simple activity is an excellent introduction to symmetry. Have your child try to visualize what the designs he or she cuts will look like when the paper is unfolded. Introduce the term "symmetry" to your child and explain the differences between line symmetry (as in a couch), rotational symmetry (as in a square), and mirror symmetry (as in a capital T). Together find examples of each type of symmetry in familiar objects, furniture, and clothing designs.

Another useful activity to make your child comfortable with geometry is visual estimation. Estimating numbers, measurements, amounts, and so on, is becoming an increasingly essential skill in order to judge the accuracy of results as we rely more and more on computerization for the actual computation. Make a game of it. Without peeking, estimate and draw to scale familiar shapes such as the triangle a puncture-type can opener makes, a button on the telephone dial (or keypad), postage stamps, and so on. Take turns choosing the shape to draw and check your final drawings for accuracy. Be imaginative. Use coins, ice-cream cones, and the like—both for models and prizes!

More At-Home Math Activities

Here are other specific suggestions for teaching the mathematically gifted elementary grade student. Parents should recommend and advocate the following kinds of activities to school personnel and provide as many of them at home as possible.



Puzzles: Puzzles are an excellent source of enrichment because they require flexible and analytical thinking, and they are readily available from many sources.

Mental Arithmetic Games: Mental computation and estimation provide a base for success at

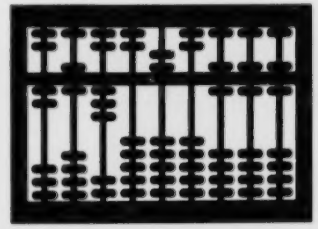
problem solving and the study of new mathematics content. Consequently, games that require children to practice computing and estimating quickly have an important place in programs for gifted math students and in the home.

Projects and Applications: Since gifted children constitute our greatest pool of potential problem solvers, it is essential that they have opportunities to see the usefulness of mathematics. Providing experiences that allow them to solve the kinds of problems they are likely to encounter in the real world—determining a crop's yield or the amount of nuclear energy needed to run a city, for example—is more difficult than gathering puzzles and games, but many young people have been successful at the task.

Imagine, if you can, a world without numbers. Have your child point out the absurdity of such a world. He or she will immediately begin to see the impact—addresses, phone numbers, money, time, speed, cooking, temperature, measurement. Point out, too, that mathematics is not strictly numbers, but that it also incorporates ideas, methods, shapes, logic, reasoning, and a myriad of other facets.

You and your young child can have fun with mathematics, provided you approach it as fun and not a learning activity. Whet his or her appetite early enough, and your child will develop a "comfortableness" with mathematics that will encourage uninhibited growth and expansion as the complexity of the subject increases. It is of primary importance to do this with girls, who begin early to develop math and science blocks that will influence them in later years. Remember, also, to take cues from your child when enough is enough—when you are the only one still having fun.

Measurement. If your child enjoys estimation, try it with weights and measurements. Children don't get enough practice with measurement in school, and it's often taken for granted as a previously mastered skill. Especially useful is metric measurement. For the grade school child, do not try to relate metric to English.

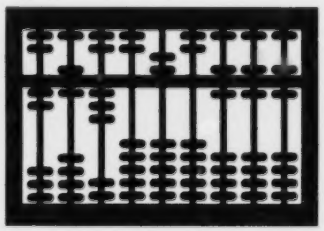


Conversion charts will always be available. Instead, decide upon a "standard" that is something familiar (ex: mm = width of a pencil lead, cm = width of one of your child's fingers) so your child has an approximation of the proper sizes of the relative measurements. (Be sure to measure your standard to get a fairly accurate approximation.)

Now look at an object—a pencil, for example—and try to guess how many millimeters or centimeters it is. Then measure to test your accuracy. How many decimeters long is your dog? How high is the swing set? You may want to get older children involved. Try converting recipes into metric and whipping up some tasty metric morsels. With practice, you and your child will become "metric masters," and if the metric system is introduced in school, it won't seem ominous.

Back to Basics. If your child has mastered addition, subtraction, multiplication, and division, nothing can be more boring or redundant than the repetitious exercises in a textbook. Develop fun and creative challenges to entertain your child while at the same time providing valuable practice in the basics. How many seconds in a day? How many years is a million days? (If you want to, remind your child of leap years.) If you have slept eight hours a day for (your child's age) years, how much of your life have you spent asleep? What is the percentage or ratio of sleeping hours to waking hours?

Ratio, Percent, and Probability. Simple probability—the ratio of the number of possible chosen outcomes to the total number of possible outcomes—can be fun and educational. For example, the probability of tossing "heads" on a coin is one in two, or 1/2 or 50 percent. Start with coins or cards and work your way up to more complex probabilities. What is the probability of drawing a face card from a deck of cards? (12 in 52, or 3 or 13.) A black face card? A diamond face card? What if, as you draw, you don't replace the last card you drew? What happens to the probability? Try creating situations and determining the probability.



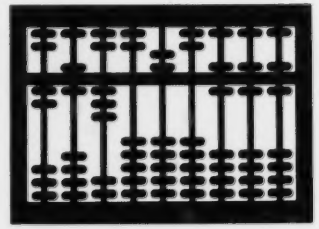
Statistics. Thought to be one of the drier aspects of mathematics, statistics can be exciting if tailored to your child's interests. Suggest conducting polls among family members or friends to determine their favorite vegetable, TV show, or color. Calculate percentages or tabulate results. Your child may even be interested in random surveying, like tabulating the number of sneakers or leather shoes. Let your child choose what interests him or her.

Logic and Problem Solving. Logic and reasoning are extremely important disciplines in any area of study. Spawned at an early age and nurtured, these abilities will grow and develop into natural responses by your child. High intelligence and common sense don't necessarily go hand in hand.

Four fundamentals of logical reasoning and problem solving that are easily adapted to other areas are organization, pattern recognition, precise verbalization, and concentration.

From preschool through college, organization can be taught and practiced in activities ranging from planning a picnic to writing research papers. To combine an exercise in organization and pattern recognition, present your child (aged seven to ten) with cards numbered 1 through 9. Ask him or her to figure out how to arrange them face-down in a pile so that when every other card is turned over, the numbers count sequentially from 1 to 9. Replace on the bottom the deck of cards that have already been turned over. (This arrangement happens to be 1, 6, 2, 7, 3, 8, 4, 9, 5.)

Depending on your child's age and skill, increase the difficulty of the game by changing the number of cards used, the frequency of the selected card (every third one, etc.), or whether or not the card is replaced at the bottom of the deck. (The same activity above can be done without replacing the cards, but stringing them out on a table, becomes 1, 9, 2, 6, 3, 8, 4, 7, 5.) Two or more children can challenge each other to see who can complete the specific arrangement first.

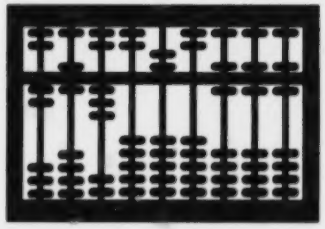


The benefits of precise verbalization are obvious, and the skill can be honed in a variety of ways. An enjoyable exercise for children of all ages is to have them draw or construct a simple design or pattern and have another person try to recreate it, unseen, through oral instruction from the creator. For example, if your child draws and instructs the other person to draw a circle with a line through it, the possibilities are limitless. Whereas, if your child instructs the other person to draw a circle with a horizontal line through the center extending slightly beyond the perimeter of the circle, the drawing is sure to approximate more closely the original. Likewise, constructions with common objects such as pencils, cans, or cards can be used, and as the designs or constructions become more complex, your child's vocabulary will increase through necessity.

There are numerous variations on the game of "concentration," where players try to match numbers or objects selected from an array of cards face-down. Use the same technique, but instead stipulate a sum that must be obtained. For example, the cards selected must add up to exactly 10 for the player to keep the cards and win another turn, or three cards must be selected totaling a specified sum.

On Your Own. Other activities you may wish to adapt include:

- A home or allowance "checking" account—perhaps overseen by an older brother or sister. Have your child balance the account periodically, and if the child is artistically inclined, have him or her design and make the "checks," deciding what information is necessary.



- Research or read about some of the fascinating people and discoveries in the field of mathematics. Check your local libraries for biographies.

Science

Sternberg (Alvino, 1985) says "scientific thinking" can be broken down into four complex thought processes: problem finding, problem solving, problem reevaluation, and reporting.

Problem Finding: This involves coming up with "significant" problems—those for which the solutions advance existing theories or create new ones, clarify current puzzles or inconsistencies, provide a breadth and depth of explanation, and have practical implications for the world we live in. Children should be taught to seek out and define their own problems, Sternberg contends, rather than depending on parents or teachers to provide them. Parents can help here with "dinner time" discussion on current events and by listening to the child share what concerns him or her. These concerns might range from world hunger to pollution to nuclear war.

Problem Solving: Once a concrete problem is "found," Sternberg suggests a model that includes: problem identification, selecting means and strategies for solving the problem logically and expeditiously, allocating resources for the solution, monitoring results, gathering feedback, and implementing an action plan. With world hunger as an example, ask these questions: What is hunger (being hungry, malnutrition?) and how widespread is it? How can it be eliminated? (Shipping food? Helping countries harvest food?) Who will pay for the program? How will we know it's working? What human and material resources are needed to get started?

Problem Reevaluation: Here children need to know that in all scientific research the outcome of an investigation may be quite different from what is expected, meaning that the scientific contribution may be greater or lesser than anticipated. Asking children to consider what they have learned about a phenomenon, compared to what they expected to find, is a good way to teach analysis and interpretation of data.

Academics at Home

Reporting: This is integral to the scientific process and, according to Sternberg, should be taught with the idea of avoiding a number of common misconceptions about the scientific endeavor. For example:

Writing a scientific paper is the least creative aspect of the enterprise. On the contrary, Sternberg says, writing usually helps scientists form and organize their thinking. Writing should be approached as part of the discovery process.

What is said is important, not how it is said. Sloppy writing and sloppy thinking go hand in hand, Sternberg argues. It is no accident, he adds, that many of the best scientists in a field are also the best writers: "They are the scientists who have most successfully communicated their ideas."

The longer the paper the better. Brevity is as important for the scientific writer as for any other. A general rule Sternberg offers is that the length of a paper should stand in direct proportion to its scientific contribution. An account of the historical development of ideas in the student's mind should not be included.

The main purpose of a scientific paper is the presentation of facts. "Scientific papers should be guided by ideas," Sternberg states. "Facts are presented to help elucidate, support, or refute these ideas."

The purpose of scientific writing is to inform rather than persuade. Successful scientific reports must inform and persuade, Sternberg says.

Refuting someone else's theory is a good way to gain acceptance for your own. This is an "indirect method of proof," which tends to cardstack evidence against alternative theories. Sternberg says it is a "common ploy in poor scientific papers."

Develop Scientific Attitudes

Give age-appropriate explanations of what your child is observing, and try not to allow very young children to confuse science with magic. Science in all its splendor may be magical in many ways, involving wonder; but it also entails explanation—particularly cause and effect. Magic involves illusion and, though also subject to explanation, connotes a more supernatural and random universe.

Balance structured activities such as demonstrations with opportunities for your child to explore related topics independently. Encourage him or her to follow hunches (hypotheses)—a basic scientific principle. Vary your approach and supplement independent work with family projects, walks, field trips, museums, and books.

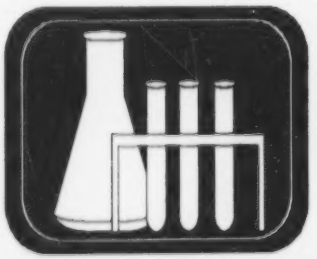
Some Miscellaneous Things to Do

Provide old appliances and household items to take apart and explore—alarm clocks, flashlights, and radios. Remove the cord on all electrical items so they can't be plugged in, and always supervise the activity.

Use a magnifying glass to explore hair, fingernails, or leaves.

Take a "rock walk" to collect rocks. Back at home, examine them for differences, likenesses, and classify them in various ways—color, size, shape, and texture.

Build a spiderarium. Use a large, clear plastic jar. Punch small holes in the lid and cover it with thin cloth or line it with a fine screen. Add grass, twigs, and a few nonpoisonous garden spiders; and observe spiders spinning webs.

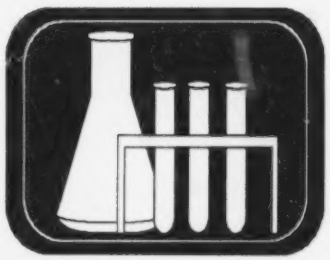


Nearly every parent has discovered the joy of turning an everyday experience or a household object into a science lesson for a child. Homes and neighborhoods are rich with opportunities: an insect carrying out its life cycle and bread rising in a warm place are just two examples.

Some Experiments

Below are a few experiments representing a variety of scientific areas to get you started. These experiments are adaptable for a wide range of ages and ability levels, though younger children will, of course, require a great deal of supervision.

As you work with your child on the following projects, you can introduce the principle of the scientific method: observing and stating the problem or questions, forming a hypothesis or possible answer based on logical thinking, devising and conducting a set of procedures to test the hypothesis, interpreting what happens in the experiment and drawing conclusions, and revising the hypothesis. Depending on your child's level of ability, encourage him or her to record the observations and results of the experiment. Explain that good scientists record data neatly and always note unusual circumstances. Whatever you do, keep the level of excitement and discovery high. Don't turn the experience into a lesson to the degree that it dampens enthusiasm and motivation.



Making an Electromagnet

Purpose: To help a child build a solenoid and discover its uses.

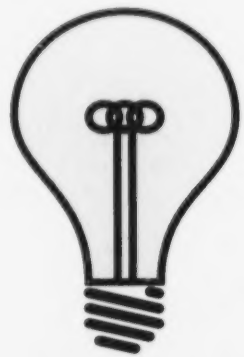
Materials: thin insulated wire; a 6-volt lantern battery; an iron nail (not galvanized).

1. Wrap a long piece of wire evenly many times around a pencil. Slip the coiled wire off and attach the ends to the battery.

2. Insert the iron nail inside the coil. The electromagnet thus created will pick up iron filings and pins. Your child can experiment with other metal objects found around the house.

Questions: What effect does the number of coils of wire have on the strength of the electromagnet? How could you quantify the strength?

Academics at Home



Academics at Home

Kitchen Chemistry

Purpose: To expose children to a simple chemical separation technique (chromatography, used in medical and crime laboratories).

Materials: a glass jar, white paper towel strips 5 cm (2 inches) wide and 25 cm (10 inches) long, children's washable ink markers.

1. Fill jar with about 2.5 cm (1 inch) of water.
2. 4 cm (1 1/2 inches) from the bottom of the paper towel strips, place a row of various colored inks. About four .3 cm (1/8 inch) dots will fit on each strip. Label each dot by color in pencil at the top of the strip.
3. Place the paper towel strips upright in the glass jar, with the ink dots near the top of, but not covered by, the water. The bottom of the strip will be submerged in the water.
4. Let the water rise up through the paper towel for about 15 minutes, checking periodically the progress of the inks.
5. Remove the strips and hang with clothespins on a string suspended over your sink. When the strips are dry, examine them, and make observations.

Younger children love to watch the inks separate into different colored bands as they move up the strips. They can see what primary colors have been mixed to make the various secondary colors in the marker ink. Older children enjoy explanations of why some colors move up the strip faster than others, so be prepared to dig out your old chemistry book to look up capillary action and solubility.

Questions: What happens if you use a shorter or longer piece of paper toweling to do the chromatography? What result will you get if you combine two different-colored inks in one dot (for example, red plus blue)?

Backyard Biology

Purpose: To introduce children to plant anatomy and reproduction.

Materials: A flower with stem cut near the ground; a magnifying glass.

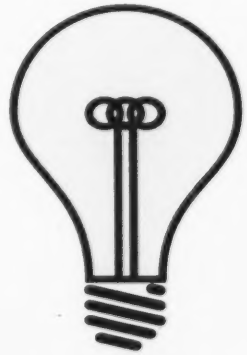
1. Using the magnifying glass, examine and point out the various parts of the flower, including the stem, sepals (which are usually small, green, leaflike structures under the flower petals), petals, pistil (the central, female organ of the flower), and stamens (the male reproductive organs surrounding the pistil).

2. Dissect the flower by splitting it in half lengthwise with a single-edge razor blade. This exposes the ovary, which houses the embryo in a seed until the ovary itself becomes a fully ripened fruit, at which time the seed can be released and grow into a new plant.

3. Explain how pollination can occur by bees, animals, wind, and sometimes purposefully by human beings. This is a wonderful opportunity to explain fertilization and the growth of the plant embryo.

Questions: What do you suppose would happen if you tried to self-pollinate an amaryllis plant? What differences do you see in the number, size, and shape of flower structures from various species?

Academics at Home



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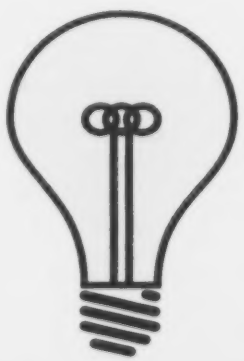


Amateur Microbiology

Purpose: To provide children with a method of culturing micro-organisms.

Materials: meat broth left over from a meal (be sure to cool the broth overnight and skim off any fat), five clean baby-food jars, aluminum foil, pressure cooker (you could use a boiling water bath, but you'd have to boil at least an hour), masking tape.

1. Pour 60 ml (about 1/4 cup) portions of the broth into each baby-food jar.
2. Cover the jars with 10-cm (4 inch) squares of aluminum foil, pressing the foil securely down around the top edges of the jars.
3. Place the jars upright in water in the pressure cooker. Follow manufacturer's directions for amount of water and proper operation of the cooker. Process the broth at 15 pounds of pressure for 25 minutes. Then let the pressure drop normally by leaving the cooker covered and exposed to air. (Do not cool under a faucet.)
4. When the cooker has depressurized to a safe but warm temperature, remove the jars carefully.
5. Place a piece of masking tape on each jar and number it. Save one jar as a control. In a notebook, keep a record of what is going to be placed in each jar. Good choices are soil, saliva, a sterile cotton gauze square, and simple exposure to air.
6. Leave the foil on the control jar. Remove the foil on the others and inoculate each with one substance you have chosen.
7. Replace the foil and incubate the cultures in the jars (including the control) by putting them on top of your refrigerator or in another warm place until bacterial growth occurs in the numbered jars.
8. Record observations in your notebook.
9. After completing your observations, resterilize the jars as in steps 3 and 4. Then dispose of them.

Questions: Were you careful with your sterile cotton gauze? (Think about it—your fingers have microorganisms on them, too.) How could you keep the gauze sterile? Did any growth occur in the control jar? Why or why not?

Social Studies

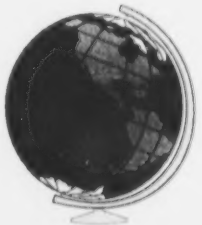
Inquiry and simulation are among the appropriate approaches for teaching social studies and history to gifted students. For example, students might be asked, "Do you think you could ever go back to a 'state of nature'—a simpler life in the wilderness away from society and civilization, as Jean-Jacques Rousseau recommended?" This question would make adults ponder. But in a history classroom for gifted students—or in a discussion of your child's homework, for example—it could open up a whole world of personal growth.

Family History

Because it is important for children to engage in projects that are not solely personal or self-indulgent, but relate to people and show caring for others, recording oral family histories and doing related cultural journalism are wonderful activities for gifted children and their parents alike (Zimmerman, cited in Alvino, 1985).

Among the abilities both tapped and developed in such a project are communication and psychosocial skills, thinking and research skills, and creativity. In the process, gifted children will discover their own heritage, gain an appreciation for a broader cultural and historical milieu, and produce invaluable mementos to share with their families for years to come.

Once your child shows an interest in finding out about his or her family or a member of it, a pursuit that may be sparked by your encouragement, help him or her to think of and plan ways to share what he or she will learn. For example, on the basis of interviews with grandparents or other family members, your child can produce a tape for a family tape library, a book or booklet recounting what was told, or a set of drawings depicting interesting events. Something as simple as a birthday card with a drawing and quotation based on the recipient's stories can become a family treasure and a source of pride.

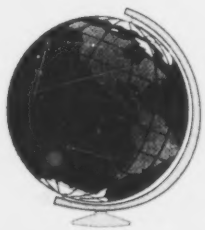


Academics at Home

An older child may want to go beyond the family interview and find out more about the times his or her grandparent lived through, in a way that relates specifically to that relative. If a child interviews a grandparent who is or was a fireman, for example, he or she may go on to talk with other older firemen at the local firehouse and do library research on the types of equipment and problems involved with fire fighting at that time. Finally, your child can make a book including the interview as well as the additional information. Such a personal link with a subject will make studying it much more meaningful than it would be if the child had merely read about it in books.

Since most of the items your child will create from the study of his or her family are based on a personal interview, it is important that he or she has a firm idea of how to conduct one. This may seem easy, and it is if the interviewer is prepared. It's also easy, unfortunately, to conduct a really unproductive interview. People who seem at first to have little to say can be the most interesting if they are given the right questions. Have your child keep the following tips in mind in getting ready to interview:

- Prepare questions in advance.
- Have many questions ready.
- Prepare the interviewee in advance.
- Be a good listener.
- Ask for details based on what you hear.
- Don't let the interview run too long.



How to Record the Interview

The easiest way to preserve a family history interview is to use a tape recorder. A simple, inexpensive recorder is easy for children to use and, of course, takes down everything exactly as it is said. If your child isn't adept with a tape recorder, be sure he or she practices before doing the interview. If there is confusion about the tape, the interview won't go as well. Recorders with built-in microphones work best, because the person being interviewed isn't inhibited by having to speak into a mike.

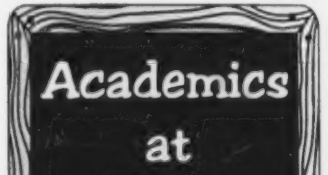
If the interview is taped and the child wants it written out, you may have to transcribe it or help with the transcription. Some children (especially detail-oriented, gifted ones with long attention spans) enjoy the painstaking process of transcription. Some younger children can't handle it physically; others are too impatient.

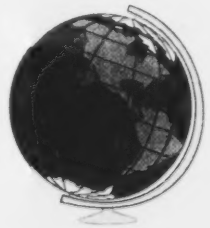
After the Interview

Once the interview is written out, your child can begin to put it into a book or other form, and combine it with drawings or additional research material. Be sure the tape is carefully labeled with the date and subject if it is going to be saved or kept as part of a family tape library.

You and your child may also want to go beyond the interview and search out family photos and documents to include in an album with a series of interviews. A terrific extension of this activity is for you to become involved yourself and do an interview with your child, asking what his or her first memories and impressions were. Kids love listening to these tapes over and over again—especially as the years go by.

Don't forget to bring out the family history tapes, albums, and books often to share them with the interviewees and other family members. They are wonderful additions to family reunions. They may even inspire one. The questions and comments that come out of listening to and looking at these materials will lead to more stories, more tapes, and more sharing.





Certain kinds of play can help children clarify and master many fundamental skills—physical, social, and intellectual.

The Value of Play

What may appear to be trivial "child's play" to adults can be a complex learning experience for children. Certain kinds of play can help children clarify and master many fundamental skills—physical, social, and intellectual. Play is likened to intellectual development through a process psychologists call transformation (defined roughly as the intellectual ability to change oneself into some object, person, or situation) and communication through language.

There seems to be a significant correlation between children's playfulness and aspects of divergent or creative thinking. Young children observed in "free play" with specific materials have exhibited high degrees of problem solving, goal-directed behavior, and persistence.

Symbolic play, which is characterized primarily by role playing and pretending, is essential in the development of abstract thinking. Children who engage in symbolic play have been found to show advances in general emotional growth, speech fluency, persistence at tasks, and ability to distinguish reality from fantasy. They show cooperation with others, the ability to tolerate delays, empathy, and leadership as well.

Maximize the Value of Play

To help your child get the most out of play, here are some starter ideas for your role from a special issue of *Practical Applications of Research* (*Phi Delta Kappa* Resource Panel, 1982).

Parents and teachers can cultivate symbolic play and, along with it, the intellectual development of their children or students. Here are some suggestions:

Watch your children play, and learn what they like and dislike, their favorite themes and interests. Encourage them to talk about their play; let them know you're interested. At the same time, be sure not to grill them.

Show playfulness yourself. Children learn from imitating adults. Help them by making comments and asking questions that encourage play. Also encourage pretending for fun and learning.

Play with your children and help them select appropriate play materials. Support them by praising their efforts at using props and materials and their efforts at role playing.

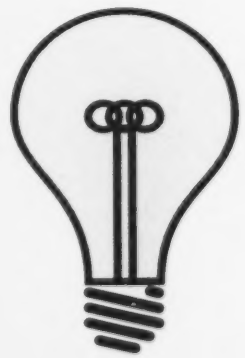
Plan for your children's play. Provide a place of their own to play, a place for organizing materials, and both open-ended and close-ended toys. At the same time, avoid over planning and over participating. Children also need substantial amounts of free time and autonomy—play for play's sake.

Word Games

Word games have always held a place of honor in educational circles. Regardless of the game, if it involves the alphabet and the kids, it has traditionally merited paeans of parental and pedagogical approval. All word games have educational value because all word games encourage the exercise and development of curriculum-related skills: letter recognition, spelling, reading, and vocabulary.

No-Cost Family Games

Some of the most appropriate games for gifted children don't cost anything. The bright child tends to be intrigued by the following games that take only paper and pencil and/or imagination.



They like to devise new rules and variations. Games like these provide a chance for the family to interact and have fun, and they can be played anywhere—on a long car trip, for example.

Fictionary/Dictionary

Fictionary, or Dictionary, depending on who teaches it to you, is an often hilarious challenge to creative writing skills. You need a dictionary and pencil and paper for everybody. One player selects the most obscure word he can find. Usually, that player suggests a few different words until one is found that absolutely nobody knows. All write down the word on a piece of paper and next to it write the most dictionary-sounding definition possible. While the players do this, the word-finder also writes down the real definition. When everybody is done (which can take quite a while), the definitions are gathered, shuffled, and read one at a time. The definitions are read once more. If playing for points, each player votes for the definition he or she thinks actually came from the dictionary. You get a point if you vote for the correct definition and if somebody else votes for yours. Usually, however, the players just try to guess who wrote what. Both vocabulary and writing skills are enriched.

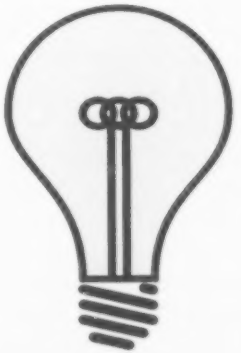
Super-duper-ghost

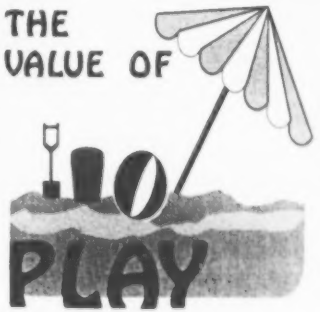
Super-duper-ghost is based on a spelling game called Ghost in which players, taking turns, say letters. The rule is that the new letter must, when taken with the rest, spell out the beginning of a word. On the other hand, it must not spell a complete word. Whoever finishes spelling a word has to start the next round. In another variation, a new letter can placed either in the beginning or at the end of the string of letters. For example, the response to A, M, P, L, instead of being E, bearing the onus of completing the word ample, could be X, A, M, P, L. If a player believes that another is bluffing, providing letters with no real word in mind, you can "call" his bluff and require that player to reveal the word and its definition.

Safari
This is the name for a version of a guess-my-rule word game such as Fannee Dollee, in which Fannee Dollee likes things that have double letters—eggs and jelly—in their names, but hates things without them—ham and jam. In Safari, the problem poser can make up any rule at all: for example, only things with antennae, or only green things, or only words that begin with vowels. The Safari leader begins the round by saying, "I'm going on a safari and I'm taking a ...," filling in the blank with a word that exemplifies the rule. Players randomly or in turn ask if they can take other words or objects then are told "yes" or "no" depending on whether or not the words used fit the pattern. Creative thinking is encouraged as well as inductive and deductive reasoning.

The Minister's Cat
The Minister's Cat is a chanting game that can be played in the car or around the table with a group of just about any size. A rhythm is more or less established, everybody clapping hands or hitting knees or something like this in cadence. One player begins the game by saying "The Minister's cat is an angry cat," or any kind of cat as long as the adjective begins with the letter "a." The next player, without breaking whatever rhythm exists, must use a different adjective, also beginning with the letter "a." This continues until a player can't think of an unused adjective beginning with "a." The penalty is that the player must now start with a "b" adjective. The game continues in this manner as far through the alphabet as everybody can stand. In addition to the obvious ("language arts" practice), the game challenges the players' ability to coordinate motor and cognitive elements at the same time.

In the Manner of the Adverb
This is a game like charades. One player or preferably two players go out of earshot while the remaining players select an adverb. The excluded players then attempt to deduce the adverb by asking anybody or everybody to perform certain actions in the manner of the adverb: "Talk in the manner of the adverb," or "Drink your coffee in the manner of the adverb," or get up, or shake hands, or recite Shakespeare. The round continues until the adverb is somehow guessed. If the guessers get too frustrated, hints are generally freely and imaginatively offered.





Family fun is a positive, transforming experience.

How to Have (Challenging) Fun Together

Family fun, the kind where tots, grown-ups, and everyone in between are enjoying an activity together, is a positive, transforming experience, observes Bernie DeKoven, president of Playworks, Inc. In his seminar, "The Living Game" DeKoven (Alvino, 1989) directs parents to get pencil and paper and gather your family around. To make the following lists:

1. For the first list, brainstorm all the responses to the question "What do you do for fun?" Record all the responses like play board games, ball games, sports; play with a toy; play hide-and-seek; play house; pretend; go shopping, to restaurants, to movies; dance; sing; watch TV; eat; do a job, etc.
2. Across from each item record a second list of how each person feels when that activity is the most fun.
3. In a third list, record which activities you do as a family.
4. On the fourth list, record how each person feels when family activities are the most fun.

Now, on another sheet, draw a big "L." Label the horizontal line "Abilities" and the vertical line "Risks." This can be called a "flow diagram."

The word "Abilities" refers to how skilled you have to be in order to do something. Clearly, ice skating requires more abilities than taking a bath. The word "Risks" refers to the consequences of failure. Again, ice skating is high-risk.

Select various activities from your first list and write each inside the "L," positioning it so as to reflect the amount of abilities the person is exercising, and the degree of risk the person is taking when the activity is clearly the most fun.

The rewards of having fun are intrinsic; they are not material or concrete. The experience of intrinsic reward as described by people who are out on a pleasant walk is the same as that described by people who find their joys on the edge of mortal peril. Remarkably, the rewards are the same. They vary only in intensity; qualitatively, the experience is the same.

Confluence

Having fun together, being in flow (feeling really good) when someone else is in flow, is yet another phenomenon. One even more powerful and motivating than personal intrinsic reward. DeKoven (1989) calls this experience confluence.

As you examine your "which-of-these-do-we-do-as-a-family?" list, look at the words you used to describe the "flow" condition of each activity (how you felt about them). Most likely these words really could not apply to the solitary experience. Sure, you were focused, involved, attentive; but you were also experiencing intimacy, sharing, unity, joining, harmony, understanding, communication, and serendipity.

When we enjoy each other and ourselves, we have a different kind of fun than we have when we are only enjoying ourselves. When we are in confluence, we are each enlarged somehow by the other. If you refer to your flow diagram, you could depict confluence simply by widening the flow channel. The effect of confluence is that you are able to stay in flow even though your personal risk is actually higher or lower than your individual tolerance. You enjoy things you would not enjoy alone. It is for this reason that confluence, the experience of having fun together, is such a great treasure.

In Sum: How To

At the heart of practically everything that is "done for fun" there is some kind of challenge. Look again at your lists of fun activities, or at your diagram. There may not be a goal or

When we enjoy each other and ourselves, we have a different kind of fun than we have when we are only enjoying ourselves.

purpose, but there is always some kind of "let's see if I can do this." The degree of challenge, however, is negotiable. In other words, if it gets too hard, we can make it easier. If it's too easy, we can make it harder. Those activities, the ones with the broadest range of challenge, seem to be the most likely to lead to confluence.

So if you want to experience confluence more directly and positively, if your goal is to share it with your family, you'll have the most luck trying something in which the challenge is rich enough to sustain the variety of abilities that your family members have to bring to the game. No activity is too stupid. No family member is too smart. What's important is variety and the common denominator of sharing time. If the goal is to experience confluence, even watching TV, doing the dishes, raking leaves, or washing the car together can help you reach it.

Summary of Key Parenting Tips

Parenting a gifted child is both a challenge and a joy. We influence our children's development in significant ways that shape their intelligence, their perspective on their talents and life, and ultimately their potential for happiness as fulfilled human beings. A parent's task is demanding, but the rewards are immeasurable. The following tips summarize some of the key strategies and attitudes to keep in mind as you forge ahead on this magnificent journey together with your gifted child.

Remember parenting styles make a difference.

Remember to temper overbearing personality traits. Focus on the positive aspects of your child's behavior; don't place unfair burdens on your child just because he or she is gifted; allow for unstructured time and self-initiated play; and balance permissiveness with authority as a loving, caring adult.

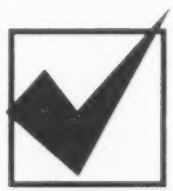
Understand that discipline requires the right kind of creativity.

It doesn't happen in a vacuum. Some structure and limits are necessary. Let your child know that he or she has your unconditional love. Show this by giving lots of affection, respect for divergent views, and age-appropriate responsibilities as a member of the family. Rules should be few, reasonable, and consistently enforced.

Provide an enriched environment with lots of materials and opportunities for exploration.

Balance "being on task" activities with relaxation and lots of free time. Let your child's interests guide your involvement. Give appropriate praise that is specific, focuses on the desired behavior

Summary of Key Parenting Tips



(not the child), and celebrates accomplishments for their own sake. Be a guide and matchmaker between your child's interests, talents, and the means and opportunities to explore them.

Remember the ABCs of stress management.

Gifted children may be at high risk for burnout. Attitude, behavior, and environment play key roles in healthy development. Children need to feel empowered with choices and positive about themselves. They need to stay physically fit (including a balanced diet), learn how to relax, and learn how to break tasks down into manageable bites. They need to be given "space" for daydreaming and for just doing nothing. Role model positive attitudes and behavior.

Nurture your child's creativity.

Establishing a responsive and expressive climate; providing encouragement for self-reliance; giving emotional support for unusual thinking; accepting some regression in growth patterns; providing balance between together and solitary time; establishing well-defined family values; and exhibiting an attitude of basic trust in your child.

Establish some outlets for creativity.

Learning a creative problem solving process and applying it to family conflicts; studying the stages of invention and inventing products that solve a problem or improve upon an existing product; and designing and producing a variety of books made at home.

Help your child learn critical thinking and study skills.

Dinner-time discussions of open-ended issues can be fun and enriching for everyone. Be careful to ask clarifying questions and not impose your point of view on a topic. Don't assume that your gifted child automatically knows how to study. Help him or her study effectively and efficiently by learning shortcuts for note taking, textbook reading, and studying for tests.

Supplement and enrich your children's study of academic core subjects.

Approach these things indirectly—in a fun, game-like manner that motivates interest and avoids overwhelming your child and turning him or her off to academics. An especially rewarding family activity is to conduct a family history together.

Avoid all work and no play . . .

This would be very unfortunate. Some of the best memories most people have are of just fooling around with family members. Sometimes organized, sometimes not, the interactions that involve fun, challenge, and just the right amount of risk are invigorating and give rise to the elusive phenomenon of confluence—being in harmony with others.

The final word.

Remember to keep your priorities straight. There is no substitute for love.

Summary of Key Parenting Tips

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